LIBRARY OF THE
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

016.7114
C73e
no. 746-768

CITY PLANNING AND
LANDSCAPE ARCHITECTURE

016.7114 cpl
C73e
#746-768

UNIVERSITY OF ILLINOIS LIBRARY

Name binding
Identification Number 5-9-75

due Feb 8
1991

Digitized by the Internet Archive
in 2010 with funding from
University of Illinois Urbana-Champaign

http://www.archive.org/details/environmentaldes747748whea

5e
/748

Council of Planning Librarians EXCHANGE BIBLIOGRAPHY

February 1975

747
and
748

ENVIRONMENTAL DESIGN: An Analysis of the Field; Its Implications for Libraries; and a Guide to the Literature

Delma Joye Wheater
School of Librarianship
University of British Columbia

Mrs. Mary Vance, Editor
Post Office Box 229
Monticello, Illinois 61856

The Library of the
FEB 4 1975
University of Illinois
Cham

COUNCIL OF PLANNING LIBRARIANS Exchange Bibliography #747-748

ENVIRONMENTAL DESIGN: AN ANALYSIS OF THE FIELD; ITS IMPLICATION FOR LIBRARIES; AND A GUIDE TO THE LITERATURE

by

Delma Joye Wheater
School of Librarianship
University of British Columbia

TABLE OF CONTENTS

Page

PREFACE 3

PART I: AN ANALYSIS OF ENVIRONMENTAL DESIGN

INTRODUCTION 6
ARCHITECTURE 8
URBAN PLANNING 12
ENVIRONMENTAL SCIENCE 16
THEORY AND METHODOLOGY OF ENVIRONMENTAL DESIGN 18
PROBLEMS IN ENVIRONMENTAL DESIGN
    DESIGNERS AND THE PUBLIC 20
    COMMUNICATION AMONG PROFESSIONALS 23
TOWARDS A DEFINITION OF ENVIRONMENTAL DESIGN 24
DIRECTIONS IN EDUCATION 25
    CANADIAN UNIVERSITIES 28

PART II: IMPLICATIONS FOR LIBRARIES

INTRODUCTION 32
ENVIRONMENTAL INFORMATION AT THE INTERNATIONAL LEVEL 32

Page

ENVIRONMENTAL INFORMATION AT THE NATIONAL LEVEL:
UNITED STATES 35
ENVIRONMENTAL INFORMATION AT THE NATIONAL AND
REGIONAL LEVEL: CANADA 37
ENVIRONMENTAL INFORMATION IN SPECIAL LIBRARIES 42
ENVIRONMENTAL INFORMATION IN UNIVERSITY LIBRARIES ... 43

PART III: THE LITERATURE OF ENVIRONMENTAL DESIGN

INTRODUCTION 47
FORMS OF MATERIAL
MONOGRAPHS 48
SERIALS 50
PAMPHLETS AND EPHEMERAL SOURCES 52
SPECIAL MATERIALS 54
ORGANIZATION OF A COLLECTION FOR ENVIRONMENTAL
DESIGN 57
SPECIAL SERVICES 61
ANNOTATED REFERENCE BIBLIOGRAPHY FOR ENVIRONMENTAL
DESIGN 62
I. GENERAL 63
II. ARCHITECTURE AND BUILDING
ABSTRACTS AND INDEXES 63
DICTIONAIRIES, DIRECTORIES, HANDBOOKS,
BIBLIOGRAPHIES 65
III. URBANISM
ABSTRACTS AND INDEXES 67

Page

DICTIONAIRIES, DIRECTORIES, HANDBOOKS,
BIBLIOGRAPHIES 68

IV. ENVIRONMENTAL SCIENCE

ABSTRACTS AND INDEXES 69

DICTIONAIRES, DIRECTORIES, HANDBOOKS,
BIBLIOGRAPHIES 71

PERIODICALS 72

ENVIRONMENTAL DESIGN: LIST OF PERIODICALS 73

CONCLUSION 80

BIBLIOGRAPHY 81

PREFACE

The emergence of interdisciplinary studies of the environment is demanding an innovative approach to the coordination of information at universities. Many diverse subject areas traditionally associated with more defined academic disciplines must be rationally integrated. The division between the sciences and humanities is deep-seated and has been reflected in our organization of knowledge in libraries. Therefore, radical changes in the kinds of materials relevant to this new interdisciplinary field, the way they are used, access to them, and the amount available, have rendered traditional library methods inadequate. To cope with the organization and retrieval of this information, librarians must consider the adoption of specially-designed bibliographic systems.

This research project is not intended to be a manual for setting up a special library for environmental design, although some guidelines are given. Rather, it is a discussion of problems in information coordination unique to this field, with suggestions for approaches to them.

An analysis of the evolution of environmental design as a distinct field, together with the conflicts to be resolved and the direction of research in this area at universities has been presented. A study of the recent developments in the theories and methodologies of architecture, urban planning and environmental science leads to the composite definition of environmental design. The theory and methodology of environmental design, and the questions and issues it provokes, define its scope and current relevance. In organizing information in this field, it is necessary to be cognizant of the subject itself and the directions in which it may develop. Consequently, the components of environmental design have been dealt with in some detail from a layman's perspective.

The creation of distinctive study programmes by universities indicates the level of response to the emergence of this new field of study. In this project, Canadian University curricula have been examined for recent developments in interdisciplinary environmental study programmes.

Libraries are also re-evaluating their organization of related knowledge. Such developments as have taken place in the control and collection of environmental information at the international, national, regional, special, and university level are examined. Stress is placed on the Canadian response, although international and United States environmental information organization obviously must play an important role. The conclusion is that in order to establish unity in presently fragmented and dispersed environmental information sources, new types of bibliographic control are needed.

A guide to the literature of environmental design suggests sources and bibliographies for various forms of material, including monographs, serials, pamphlets, ephemera, and special materials. The latter category comprises increasingly important multi-media sources: films, slides, pictures, microforms, maps, plans and games. The organization of such collections, with emphasis on the development of a unique thesaurus, suggests complete integration of materials by subject for ease of access. Because of the nature of the collection, it is most important that the organization of the materials should develop empirically. Each situation must be analyzed for its particular subject orientation, imposed limitations, types of users, and the working environment since any superimposition of one set of organizing principles may embody biases or preconceptions which are not universally acceptable.

The research project is concluded with a selective annotated reference bibliography for environmental design, which provides representative types of reference materials for a basic collection in the field. Since the majority of published materials fall into distinct subject disciplines, the bibliography is divided into sections on architecture, urbanism and environmental science. Thus, the reader can choose reference publications according to the particular bias of the collection.

Because ideas for environmental design are found in many journals outside of these three areas that have been discussed, the list of periodicals comprehensively includes a wide range of subjects. Throughout the guide to the literature, Canadian publications have been emphasized. Potential areas for further research in the analysis and organization of the literature of environmental design are suggested in the conclusion.

PART I: AN ANALYSIS OF ENVIRONMENTAL DESIGN

INTRODUCTION

Comprehensive Environmental Design can be defined as the planning and organization of all aspects of the built and natural environment for human ends. Dober in Environmental Design suggests that through the design and manipulation of our surroundings, human habitation should be made as varied, enjoyable, stimulating, healthy and rewarding as possible.[1]

---

[1] Dober, Richard P. Environmental Design. New York: Van Nostrand, 1969. Preface (4).

As a new concept of associations and relationships, environmental design involves segments of the humanities, social sciences and pure sciences. A diversity of opinions exists as to the proper balance of interaction between subjects; however, a total view of environmental design embodies a synthesis of architecture, urbanism and environmental science. It can be seen that the realms of planning and design are being integrated with the sciences of man to adduce exact and useable knowledge with which to understand and shape the environment.

A combination of the growing complexity, rapid change, and rising expectations in our society has precipitated an urgent sense of need for the development of abilities to maintain and improve the quality of life through environmental control. Congestion, pollution and alienation are features of cities requiring immediate attention, as they are becoming increasingly less manageable. The present means for dealing with such problems are inadequate.

The complexity and diversity of environmental problems has resulted in a movement towards interrelation in surveying all spheres of human activity. Methodologies employed by the composite subjects of environmental design are also becoming more compatible. The use of the scientific method is becoming more important and frequent in the humanities and social sciences, while an increasing similarity of method is being used to analyze both thought and feeling, science and art.[2]

---

[2] Giedion, Siegfried. Space, Time and Architecture. Cambridge, Massachusetts: Harvard University Press. Fifth ed. 1967, p. 16.

Thus, it is the mutual objectives in conjunction with common methods of examination which draws the traditionally separate disciplines* of architecture, urban planning and environmental science together. A discussion of the individual changes in orientation of each discipline, from a historical perspective, will clarify the concepts and subject interests which lead to the present idea of environmental design.

ARCHITECTURE

Architecture as an art form has a long recorded history in civilization. It has always been bound up with the life of a period as a whole - its peculiar limitations, potential, needs and goals; and as such it is a product of social, economic, scientific, technical and ethnological factors. A study of the history of architecture reveals that the expressive means of design vary with the dominating concepts of the era. It follows that a general understanding of contemporary architecture - its purpose, direction and effectiveness - is inextricable from a comprehension of present socio-cultural influences.

The historical evolution of spatial organization has led progressively to three discrete interpretations of space: (a) exterior space, where static volumes were related to each other (e.g. the structures of the Acropolis); (b) interior space, where the outer shape reflected the space within (e.g. the Roman Pantheon); and (c) the present interpretation of space as a combination of the first two stages.[3] The third conception of space - architecture as both sculptural volumes and functional interior space - was initiated by revolutionary construction methods developed by twentieth century industry.[4] New materials, such as reinforced concrete, allowed important changes to be effected in design techniques, so that sculptural architecture became combined with functional attitudes. Architectural design was also influenced by the Cubist art movement* as relationships of volume, space and transparency took the place of concerns for mass and solidity.[5]

---

*'discipline' is defined as 'a branch of knowledge or of teaching'. (American Heritage Dictionary)

This is evidenced in the progression towards 'group design' in the interrelating of buildings of various heights and sizes. Since the advent of the skyscraper in the early twentieth century, differing heights have had to be resolved in harmonious relationships. This has lead towards our present day concept of urban design which involves both architects and town planners. Consideration is given to both the interior design and the exterior volume relationships.[+] Architecture is now viewed in terms of treating man's total physical environment.

---

[3] Heyer, Paul. Architects on Architecture: New Directions in America. London: Allen Lane. 1967, p. 27.

[4] Giedion, Siegfried. Architecture and the Phenomena of Transition: The Three Space Concepts in Architecture. Cambridge, Massachusetts: Harvard University Press, 1971.

*Braque and Picasso (circa 1909-1914) opened up new fields of visual perception based on the plane surface and juxtaposition of shapes. They introduced a fourth dimension, time, to their compositions by fragmenting solid objects into their components.

[5] Heyer, Paul. Architects on Architecture, p. 22.

In the last few decades, the role of architecture has been transformed to include a consideration of a wider spectrum of events that bear directly on the quality of life in our urban environments. It goes beyond the notion of a single building as an unrelated form. Contemporary architecture embodies the integration of social content, technical capacity, and the perceived values of society into a spatial expression of harmony. Problems such as restoring human scale, the rights of the individual, and security of movement within a city, pervade the traditional ideas of form design.

According to a conference held at Princeton University in 1953, the basic criteria in architecture are defined as:

1. The building is logical structurally. (i.e. the mechanical systems, etc. are integrated coherently)
2. The plan works. (i.e. the form optimally accommodates the function)

[+] One of the most interesting examples of group design is architect Kenzo Tange's Tsukiji plan for the Dentsu Advertising Company in Tokyo. His description: "Core columns act as vertical streets connecting with the traffic flow of the city. Structures are a sculpturally articulated assembly of various square and rectangular forms...multi-story bridges between areas, and cantilevered areas.... Such a system would permit differentiation and blending and would organically unify the relationships among the constantly expanding and changing city, its transportation and its architecture. It would make possible a continuous open city-scape." Tange, Kenzo. "A Plan for the Tokyo Tsukiji Area," in Japan Architect, May 1967, p. 70.

3. The whole is aesthetically pleasing.

4. It is economically feasible.[6]

Since 1953, social responsibility has become one of the dominating themes in the methodology of design. Fitch states: The tradition of the socially conscious, intellectually committed architect has a long history, particularly though in the Twentieth Century. During the depression of the 30's, architects were forced into government sponsored projects which gave them a sense of identification with society. Thus social architecture emerged and is becoming even stronger as the concern for our environment grows."[7]

With the 1960's being the decade of the social scientist, and economists introducing cost-benefit analysis, architecture began to focus more on social and economic issues.[8] Unfortunately, accompanying this new interest is the consequence that criteria for design is increasingly being dictated by economic constraints rather than by social or aesthetic concerns. In addition, since there is no systematic body of knowledge to evaluate buildings and their behavioural implications for people, the sociologist and anthropologist are playing increasingly important roles in design. It is only recently that behavioural consequences of architectural design have been evaluated empirically through situation analysis.

---

[6] Princeton University. School of Architecture. Architecture and the University. Proceedings of a Conference held at Princeton University, December 11-12, 1953. Princeton, New Jersey: Princeton University School of Architecture, 1954.

[7] Fitch, James Marston. "The Profession of Architecture." University of British Columbia. School of Architecture. Paper, 1973.

[8] Alonso, William. Beyond the Interdisciplinary Approach to Planning. California: Institute of California, Berkeley. Institute of Urban and Regional Development. Center for Planning and Development Research. Working Paper, No. 90, 1968, p. 13.

Thus, contemporary architecture must satisfy a whole range of human needs. At the same time, however, such architecture must work within physical and technological constraints imposed by the society it is attempting to serve.

URBAN PLANNING

Urban planning as a professional field had its beginnings in the 1920's. Previously, architects and engineers had fulfilled this role. However, increasing centralization in the early twentieth century created a need for urban specialists in the planning field to deal with the complex problems which evolved.[9]

Although town planning was conceived of originally in terms of aesthetics, a need for greater relevance forced it to adopt many of the materials and methods of social sciences. Attention was focused on the efficient functioning of the city, land-use patterns, government processes, and the human condition. Today, "planning has come to be viewed as encompassing many socio-economic and political, as well as physical, elements that help to guide the functioning and development of the urban community."[10]

---

[9] Perloff, Harvey S. Education for Planning: City, State and Regional. Baltimore: Johns Hopkins Press, 1957, p. 11.

The changes in the shape of cities has always been influenced by technological advances.* The contemporary city is menaced by industrial machines and their effects on our environment. Cities are being overwhelmed by the dynamic requirements of mass transportation; they are expanding in an uncontrolled fashion to accomodate massive increases in population; and they are plagued by increasing traffic problems. As a result, the need to find solutions to these problems - to relieve the pressures on water, land and energy resources - is stimulating the development of formal planning activities by both public and private groups.

It is an open question as to which direction cities will develop. Giedion claims that cities are moving towards a separation of functions: motor traffic and pedestrian travel; central business districts and residential areas.[11] Presently the city comprises a chaotic intermingling of systems inherited from the large cities of the nineteenth century.

---

[10] Ibid., p. 12

*For example, with the historical evolution in warfare, older cities were rendered helpless against attack and were forced to change their structure for the sake of protection.

[11] Giedion, S. Architecture and the Phenomena of Transition, p. 274.

Various options have been presented for the future: one solution of urban problems is the complete and conscious destruction of the city as we know it. As a reaction to the existing industrial system, Frank Lloyd Wright proposed a division of all land into small segments to combine the elements of urban and agrarian life styles.[12]* However ideal this may appear, the primitive form of society proposed is completely out of scale with the problems which today demand solution.

A more feasible alternative recognizes that cities are not passing phenomena but must be brought into harmony with the needs of present day life. The means for effecting a harmonious plan is one of the long-term goals in developing various techniques in planning. C. Van Eesteren, the chief architect of the city of Amsterdam from 1929-1960 presents methods for the contemporary town planner. He suggests that each city be first analyzed for its past functions and method of achieving its present stage of growth. Then the social aspects and people's living patterns must be considered. Finally, population densities, communication, separation of residential, working and industrial sections should also be studied.[13]

---

[12] Giedion, S. Space, Time and Architecture, p. 820.

*His 'Broadacre City' was based on Ralph Borsodi's experiments in the 1930's with a self-sufficient community which performed all functions from canning food to making cloth in a decentralized arrangement of small-owner units. See: Borsodi, Ralph. Flight From the City. New York: London and Harper, 1933.

[13] Giedion, S. Space, Time and Architecture, p. 816.

Here, some attempt at forecasting is a prerequisite. City planners must attempt to evaluate which form of living will be acceptable in the future. Should great cities with people living in outlying settlements be encouraged, or should small internally oriented towns be planned?* The aim is to discover the forms best suited to both existing reality and to the desired goals of the future. Thus, the prevailing interpretations of life style dominate the forces motivating urban planning. An attempt is made to express these concepts through contemporary artistic means. But is the city with its variety of expressions fulfilling human needs? As in architecture, current ideas focus on recapturing the intimacy of life while simultaneously planning for growth and change.

The problems of urban planning can be defined through an analysis of the interrelationships of the various elements forming the fabric of a city. The economic emphasis on transportation, utilities, public services, recreation, contends with the emphasis on the natural environment and coordination of natural resources. The problems confronting urban planners do not respect boundaries of the traditional academic disciplines. Gans writes, "Since planning activities affect people, they are inevitably social (as well as political, economical, geographical, architectural, etc.). Moreover in actual planning practice, no problem can be solved by any one method or any one skill. In most instances a whole variety of techniques are needed to achieve the goal."[14] Similarly, Alonso comments, "Any problem in urban and regional planning except the most trivial involves physical design, social aspects, economic aspects, political aspects, ecological aspects, etc...."[15] Obviously, a more comprehensive view of the city and urban dynamics underlies the new approach to urban planning.

---

*Independent new towns are presently being designed to accommodate a maximum population of 100,000. These are based on the principle that at each stage of development, a fully functional physical unit is presented. Whyte, William H. The Last Landscape. New York: Doubleday, 1970, p. 253.

ENVIRONMENTAL SCIENCE

Environmental science is a field which has develcped rapidly in the last decade as a result of society's heightened concern with the environment. Dealing with the application of scientific knowledge to environmental problems, it maintains a conceptual cohesion through the topics it deals with rather than through a theoretical structure. As such, it is almost totally problem-oriented in contrast to the classical scientific disciplines it draws upon - chemistry, physics, biology and geology. The applied nature of environmental science is environmental science is evidenced by the fact that even theoretical considerations are ultimately aimed at solving real-life problems.[16]

---

[14] Gans, Herbert J. People and Plans; Essays on Urban Problems and Solutions. New York: Basic Books, 1968.

[15] Alonso, W. Beyond the Interdisciplinary Approach, p. 2.

[16] Hufschmidt, Maynard M., ed. Regional Planning: Challenge and Prospects. New York: Praeger, 1969, p. 75.

Because it is so new, there is as yet no systematically-defined body of knowledge for evaluation. Comprehensive works and definitive texts on environmental problems are not available; but subject areas which have been identified as possible knowledge bases include: management of industrial residues, recycling wastes, ecological rehabilitation, climate control, non-consumptive management of wildlife, behavioral planning, etc.[17]

By definition, environmental science is interdisciplinary focusing on the maintenance or improvement of the human environment through conscious design. In an increasingly technological society, a study of our human problems, irrespective of disciplinary boundaries, is necessary in order to arrive at solutions to the complex questions involving environmental quality. Stress is therefore placed on the methods of solving real problems rather than on the theory of the scientific disciplines which provide important knowledge in the field.[18]

Environmental science has a social interpretation as well. Being a man-oriented scientific field, it must link natural laws of the environment with cultural knowledge. Its methodology emphasizes an awareness of the legal, economic, moral, technological and operational constraints of environmental problems in conjunction with an understanding of science, group processes, communication, organizational skills and the scientific method. Seeking to organize existing knowledge in all of these areas, environmental science is also concerned with generating new knowledge of extant and foreseen problems, translating this knowledge into a design for our present and future environment.

---

[17] University of Calgary. Faculty of Environmental Design. Notes on Courses, 1972, p. 8.

[18] Steinhart, John S. and Stacie Cherniack. The Universities and Environmental Quality; Commitment to Problem Focused Education. A Report to the President's Environmental Quality Council. Office of Science and Technology. Washington: D.C.: U.S. Government Printing Office, September 1969, p. 4.

THEORY AND METHODOLOGY OF ENVIRONMENTAL DESIGN

As the current trends in architecture, urban planning and environmental science progress towards an interdisciplinary view of the environment, it is not surprising that the enormous complexity and interrelatedness of environmental processes encourages these areas to join forces in the newly created realm of environmental design. These fields are, to varying extents, interrelated in their conscious planning for the integration of the multifactorial aspects of the environment.

An examination of current literature reveals a general consensus on this interdisciplinary trend. Geddes and Bernard state in A Study of Education for Environmental Design: "Our knowledge of the close linkages between changes in the physical environment and the social, economic and political setting for human affairs makes it clear that a wider range of abilities, disciplines and professions must work together for effective planning and design to be possible."[19] With the increasing understanding of relationships in environment-oriented problems, a unified effort is being carried out to solve them. In "Comprehensive Environmental Planning," Kates maintains that total planning of the environment is the goal to which society is moving.[20] Boundaries are being crossed and focus placed on a comprehensive view of man and community.[21]

It is difficult to generalize theories and concepts in environmental design, since the literature portrays it with many disparate views. Many theoretical orientations and numerous methodological approaches exist. Kates concludes from a study of relevant literature, that the objectives are broadly concerned with physical and mental health, sensory and participatory pleasure, and economic value.[22]

The methodology of environmental design is primarily related to determining approaches to problems (real-world analysis), rather than developing single standards applicable to all situations (sectorial specialization). In Emerging Methods in Environmental Design, Moore outlines design methods in a discussion of the hierarchical nature of complexity in environmental design. The methodology is inclusive of all variables that are of a real significance as opposed to factors which are analyzed theoretically for their own sake.[23]

---

[19] Geddes, Robert L. and Bernard P. Spring. A Study of Education for Environmental Design. A report by Princeton University for the American Institute of Architects. Princeton, New Jersey: Princeton University Press, 1969, p. 49.

[20] Kates, Robert. "Comprehensive Environmental Planning," in M. M. Hufschmidt. Regional Planning. New York: Praeger, 1969, p. 68.

[21] Dober, R. P. Environmental Design. Preface (4).

[22] Kates, R. "Comprehensive Environmental Planning," p. 68.

Primary in this methodology is the idea that design must be modifiable for changing tasks. Studer and Stea in their article, express this attitude: "The fact that we cannot precisely predict such future requirements does not preclude the possibility of specifying the environmental contingencies; it only means that the physical system must be programmed to change its state when disequilibrium occurs. The design of such physical systems may very well define the conceptual and technical challenge of the future for environmental designers."[24]

PROBLEMS IN ENVIRONMENTAL DESIGN

Designers and the Public

The effectiveness of good design depends upon the ability of the public to recognize it. Lack of communication between environmental designers and the population at large is impeding progress in this field. Socio-cultural factors are also a hindrance in communication as Rapoport points out in a conclusion from an analysis of current literature: "There is an increasing body of findings and suggestions that designers and the public are two cultures with different values, ways of living - different universes of discourse."[25]

---

[23] Moore, Gary T. Emerging Methods in Environmental Design. Cambridge, Massachusetts: MIT Press, 1970.

[24] Studer and Stea. "Architectural Programming, Environmental Design and Human Behavior," in Journal of Social Issues, Vol. 28, 1972.

The problem arises in defining real problems as opposed to perceived ones. The images of what a situation should be like are highly variable according to socio-cultural determinants. As Sommer observes, "Questionnaires or survey approaches to the study of environmental influences are limited by the fact that the environment tends to affect people beyond the focus of awareness. ...people do not articulate in any organized way how their environment affects them."[26] In Man Adapting, René Dubos states that the actual effects that the environment exerts on man commonly bear little resemblance to the direct effects that could have been expected from the physico-chemical nature of the stimulus. Environmental forces produce indirect effects which are often interpreted as the actuality.[27] In addition, few studies have been carried out to analyze the effect of the environment on man. This is particularly true in the case of the built environment, as was mentioned earlier. The Director of the School of Environments Research Project at the University of Michigan points out, "Curiously enough, the problem of human requirements has had no serious research until recently as a basis for determining the design of building. ... As a result there is a dearth of scientifically grounded information concerning the effects man-contrived environments are likely to have on their occupants."[28]

---

[25] Rapoport, Amos. "Some Observations Regarding Man-Environment Studies," in Architectural Research and Teaching, Vol. 2, No. 1, November 1971, p. 9.

[26] Sommer, Robert. "Man's Proximate Environment," in Journal of Social Issues, Vol. 22, No. 4, p. 59.

[27] Dubos, René. Man Adapting. New Haven: Yale University Press, 1965.

Another impedance to communication between designers and the public is the growth of corporate entities which interact in the design process. Formerly a one-to-one interaction commonly applied. Today, the 'real' client is rarely the 'legal' client and consequently designers can not execute the form and method they consider optimum. Economic constraints control design criteria to a great extent. Thus the planners and those planned for are realizing a breakdown in information exchange.

Presently this lack of communication is being recognized by all sides, and attempts are being made at mediation of these conflicts. Education to sensitivity, towards one's surroundings should aid in the amelioration of designer-public communication and in our understanding of the implications of the environment. Gruft and Gustein tackle this problem by recommending a 'democratic planning process' based on the use of a rational design process requiring a public justification of proposals. They maintain the public should participate in the process through an open communication channel involving public, professional, and governmental decision makers.[29]

---

[28] Larson, C. Theodore. Ser. 3: Environmental Analysis. Ann Arbor: University of Michigan, 1965.

Communication Among Professionals

Since the scope of environmental design does not respect boundaries of scale, and deals with very small components as well as broad regions, the problem-solving methodology must cope with every facet. If one looks at who in involved with these problems, one finds contributors from various collaborating professions bringing together techniques, knowledge and peculiar viewpoints of several disciplines. In response to complex design problems, teams are assembled comprising a variety of subject specialists. Brought together because of their diversity, those involved in the team approach of interdisciplinary discussion have a critical communication problem. Each individual's viewpoint is based on his particular discipline's theory and methodology. Thus each attributes different importance to areas of concern, semantic inconsistencies arise and individual approaches to the problem are stressed.

Alonso in Beyond the Interdisciplinary Approach to Planning, delineates the questions in professional communication, and advocates the training of 'meta-disciplinary' people who have a concentration in one aspect of the field but who also are generally knowledgeable about the academic and non-academic literature and of the problems of government and social realities. Their common methods of approach to problems and their awareness of the various facets would imply a more unified model for the incorporation of a variety of disciplines into the environmental planning process. Such persons would have the ability to communicate effectively, having a common vocabulary and common underlying goals. He consequently urges the education of interdisciplinary professionals in order to solve physical and natural environmental problems.[30]

---

[29] Gruft, Andrew and Donald Gutstein. "A Basis for Resolving Urban Problems," in Architectural Research and Teaching, Vol. 2, No. 1, November 1971, p. 59.

An interim approach, until this can be effected, could be through the development of a more conscious cooperative effort on levels of theoretical research and practical design. Each member of a closely communicating interdisciplinary team could be subject to scrutiny for an understanding of criteria adopted by each individual.[31] This idea would be the initial step towards improving communication between the disciplines.

TOWARDS A DEFINITION OF ENVIRONMENTAL DESIGN

A conscious effort is taking place to solve these problems through the development of a discipline of environmental design with its own explicit conceptual framework. Since it is in its early stages of development, there are a variety of schools of thought describing the same phenomena. An examination is taking place of the underlying assumptions. Questions such as: Which phenomena does it claim to explain?

---

[30] Alonso, W. Beyond the Interdisciplinary Approach, p. 6.

[31] Gruft, A. and D. Gutstein. "A Basis for Resolving Urban Problems," p. 62.

Do these overlap with other disciplines? What kind of image of the city and model of man are implicit in its theoretical formulations? What effects do its methods have on its theory?[32]

Since each individual discipline maintains its own theoretical and methodological basis, the concepts of each are not easily transferable. Consequently, a discipline of environmental design is emerging inclusive of all specialties whose knowledge is concerned with man and the environment - although as Rapoport concludes, a paradigmatic* consensus has not yet been fully realized.[33] It is recognized that a collection of knowledge from various fields can not suffice to solve complex environmental problems requiring a unified approach. This movement towards inter-relation is reflected in changing university curricula.

DIRECTIONS IN EDUCATION

The problems raised in environmental design have generated many educational programmes:

-environmental design education programmes at elementary and high school levels

-adult education programmes related to environmental design

---

*In his book The Structure of Scientific Revolutions. Chicago: University of Chicago Press, 2nd ed, 1970. Thomas Kuhn defines paradigms as universally recognized endeavours that provide model problems and solutions to a community of practitioners.

[32] *Ibid.*, p. 62.

[33] Rapoport, A. "Some Observations Regarding Man-Environment Studies," p. 10.

-cooperative programmes with industries

-participant observer sessions in areas with serious environmental problems; and at universities:

-team teaching by a wide range of disciplines

-joint programmes between several disciplines

-multidisciplinary research on methods of problem solving

-research at the Doctoral level

-the formation of special institutes in the environmental field which would provide facilities for advanced study.[34]

It appears that a greatly improved system of education and training is necessary. Questions are being asked at universities about appropriate relationships between architecture, planning, engineering, social sciences and most recently, environmental science. A variety of schools, departments and faculties are beginning new programmes based on a reorganization and merging of disciplines interested in design and the environment. Often these do not include all disciplines inherent in the total concept of environmental design, but are agglomerations of specific groups dealing with one particular aspect.

Steinhart and Cherniack completed a study of many of the vigouous multidisciplinary programmes at universities to discover the kinds of programmes that had been tried, which ones had been successful, and how government might encourage academic efforts in the United States. Their research extended into the possible methods of integration of academics, government, and society at large in focusing on complex problems of environmental quality. They discovered that there was a national shortage of broadly trained professionals to deal with environmental problems and recommended government assistance in the formation of 'Schools of the Human Environment.' These would be interdisciplinary in their perspective.[35] Dr. J. Kenneth Hare, Professor of Geography at the University of Toronto, sums up the case for interdisciplinary studies of environmental design when he states: "The essence of our thinking is that we can't tackle problems that don't fit the competence of our own discipline."[36]

---

[34] Geddes, R. L. and B. P. Spring. A Study of Education for Environmental Design, p. 19.

The formerly separate schools of architecture and town planning are suggesting more inclusion of other fields. As early as 1953 it was recommended at a conference on architecture and the university, that people who represent other areas that are contingent to architecture be brought into the schools.[37] Alonso in his discussion of urban planning, advocates that problems be attacked by one or more professionals who are firstly scholars in urban and regional problems and secondarily members of traditional disciplines.[38]

---

[35] Steinhart, J. S. and S. Cherniack. The Universities and Environmental Quality.

[36] Ibid., p. 6.

[37] Princeton University. School of Architecture. Architecture and the University, p. 33.

[38] Alonso, W. Beyond the Interdisciplinary Approach, p. 8.

Geddes and Spring researched a report for the American Institute of Architects in 1967 to analyze the changes exhibited at universities in education for environmental design.[39] After reviewing hundreds of school catalogues in a search for a unifying pattern that could relate all aspects of environmental design education, they suggested a diversity of new programmes be established to train people to work together effectively in designing the environment. At the same time, they recommended a high degree of speciality in one area of concentration. They conclude that no single sequence of courses would be adequate, but that programmes should be devised whereby a student could choose options according to his aptitudes and interest. There is a keen awareness in this report of the danger in broadening education to the point of generalization. Educational needs must be matched with finite human resources. Garret Hardin underlines this dilemma: "Human ecology rather resembles engineering. It draws upon many recognized disciplines.... Renaissance men being scarce, this is too much to ask. Yet we must somehow try to integrate many sorts of knowledge."

CANADIAN UNIVERSITIES

New directions in environmental design education are being reflected in Canadian Universities by the formation of unique interdisciplinary study programmes on the environment. An analysis of a few of the programmes indicates the diversity of approach, from creating administrative liaisons between departments to forming special faculties.

---

[39] Geddes, R. L. and B. P. Spring. A Study of Education for Environmental Design.

At the University of Waterloo, the Division of Environmental Studies brings together in one administrative unit two academic departments and two professional schools in which the teaching and research emphasis is on man and his environment. It includes the Department of Geography, Department of Man-Environment Studies (an interdisciplinary, undergraduate programme), and the professional schools of Architecture and of Urban and Regional Planning. Undergraduate programmes exist in each area, with graduate programmes in Geography and in Urban and Regional Planning leading to Masters and Ph.D. diplomas. There are some joint courses under this arrangement, with the major emphasis on research related to Canadian environmental issues.[40]

The graduate Faculty of Environmental Studies at York University in Toronto, Ontario approaches the concept of the total environment - human and physical - as a set of phenomena that can be identified and managed as a whole in operational terms. It therefore includes a broad range of subjects pertaining to man in relation to his physical, biological, cultural and social environments.[41]

---

[40] University of Waterloo. Waterloo, Ontario. Graduate Studies. Calendar, 1972.

At the University of Calgary, a variety of programmes has developed. An undergraduate interdisciplinary studies course within the Faculty of Arts and Science, entitled 'Environmental Studies,' primarily comprises courses from biology, zoology, geography, geology and sociology. In addition, a Committee on Resources, the Environment and Planning offers individual programmes of interdisciplinary studies at the master's level. A graduate Faculty of Environmental Design was created in 1972 to teach subjects related to man and the environment conceptualized in the broadest sense, and leads to professional qualifications in architecture, urbanism and environmental science. Studies are oriented towards environmental policies, creative design, planning and the development of new knowledge, and techniques in the environmental sciences. Training in interdisciplinary thought and problem solving are the unique elements of the programme.[42]

In Manitoba, Brandon University offers an undergraduate major in 'Environmental Science' to study our physical and human environment from a variety of viewpoints.[43] The University of Manitoba offers graduate training in interdisciplinary environmental programmes under the Natural Resource Institute, and undergraduate programmes in the Department of Environmental Studies. The programme offers fundamental design methodology and techniques for responding to those needs of society which demand some form of man-made design.[44] The University of Winnipeg offers an interdisciplinary undergraduate programme called 'Environmental Studies' which focuses on three aspects: the natural government, the emergence of man, and the man-made environment.[45]

---

[41] York University. Toronto, Ontario. Faculty of Environmental Studies. Programs Leading to the Degree of Master in Environmental Studies, December 1973.

[42] University of Calgary. Calgary, Alberta. Calendar, 1973/74.

[43] Brandon University. Brandon, Manitoba. Calendar, 1973.

In addition, many interdepartmental courses are being created at universities which do not have interdisciplinary programmes on man and the environment. For example at the University of Lethbridge, a student-initiated course was started in 1972, entitled 'Human Survival I.' It was designed as a multidisciplinary study of the problems of human survival.[46]

Traditional distinctions among the separate scholarly disciplines concerned with the environment have become less and less relevant, according to our increased knowledge of the environment and its effect on man. New institutional mechanisms are realigning subjects dealing with the environment, while academic groupings are approaching acquired knowledge of the environment in new ways and on a much larger scale than has been attempted in the past.

---

[44] University of Manitoba. Winnipeg, Manitoba. Calendar, 1972.

[45] University of Winnipeg. Winnipeg, Manitoba. Calendar, 1972.

[46] University of Lethbridge. Lethbridge, Alberta, Calendar, 1972.

PART II: IMPLICATIONS FOR LIBRARIES

INTRODUCTION

In the following section, the organization of information processes is examined at several levels. Covering the improvement in communication and retrieval of environmental design information being sought by international organizations, government, interested associations, industries and universities, the implication for libraries is emphasized.

ENVIRONMENTAL INFORMATION AT THE INTERNATIONAL LEVEL

The global interest in the control of the environment is evidenced by the number of international conferences being held to debate environmental issues. Their recommendations for the solution of serious environmental problems encompass educational, informational, social and cultural innovations. At the United Nations Conference on the Human Environment held in Stockholm, Sweden in June 1972, Recommendation IV-137 called for the implementation of an 'International Referral Service' for sources of environmental information.*

---

*Several other recommendations that were stressed were: the development of a common methodology for assessing environmental quality; the promotion of more study on socio-cultural environmental quality; the creation of public awareness of the issues; and the strengthening of community action.

The subjects and responsibilities assigned were defined as: "planning and management of human settlements for environmental quality; environmental aspects of natural resources management; identification and control of natural resources management; identification and control of pollutants and nuisances of broad international significance; educational and informational concerns; development and environment; and, on the other hand should catalog all relevant governmental and international sources of data, technological and scientific information, legislative, administrative, and policy information, and public information."[47]

Special Library Association representatives reported on the conference and the role information specialists and librarians must play. Since various countries proposed different priorities for the Referral Centre (i.e. Australia - a thesaurus; Korea - a handbook of existing information services; Romania - a central repository of documents, etc.), the librarians submitted a statement on the organization: "The United Nations should be responsible for a centralized exchange of environmental information. In planning such exchanges, account should be taken of existing collections and services and the advice of librarians and information specialists should be sought."[48] The fact that only four librarians (two from S.L.A.; two from F.I.D.) attended this Conference indicates the need for reappraisal of our responsibilities on such vital issues as human survival. In the conclusion to their statement, the librarians stressed the need that 'Non-Governmental Organizations,' such as IFLA, be consulted for representation in the International Referral Service.[49]

---

[47] "U.N. Environmental Conference approves plans for international referral service and world-wide information," in Information, Vol. 4, No. 4, 1972, p. 183-184.

[48] Anglemeyer, Mary and Signe R. Ottersen. "Beyond Stockholm," in Special Libraries, September 1972, p. 409

Subsequently, at the meeting of the United Nations Environment Programme in Geneva, June 5-26, 1973 and the concurrent World Assembly of Non-Governmental Organizations Concerned with the Global Environment, the Special Library Association was the only directly information-original organization represented. The purpose of the NGO Assembly was "to achieve a focus on action programmes, education and information concerning the global environment" - a topic in which librarians have a vested interest and responsibility. The environmental information process and its role in international problem solving was discussed in detail. It culminated in a recommendation that the implications of environmental information needs on library and information science education be actively considered in this complex, multidisciplinary field.[50]

---

[49] Ibid., p. 410

[50] Dosa, Marta L. "A View of the International Environmental Information Problem," in Special Libraries, October 1973, p. 462.

ENVIRONMENTAL INFORMATION AT THE NATIONAL LEVEL: UNITED STATES

The United States government has taken many steps to improve the coordination and cooperation in literature identification and exchange. In September 1972, the U.S. Environmental Protection Agency sponsored the First National Environmental Information Symposium which included 1,700 participants plus 50 international observers.[51] In addition, the Congress has developed special information services to deal with environmental issues. The Environmental Policy Division of the Library of Congress was established in 1969 as part of the Legislative Reference Service. The staff is available for reference work and data retrieval on any environmental topic, making use of a 'pro and con' technique as a means of organizing information.[52]

The National Environmental Policy Act (NEPA) of 1969 was designed to alter the existing channels of communication in policy making which affect the environment. In particular, Section 102 requires that all agencies of the Federal Government must present detailed environmental impact statements considering adverse effects, alternative, long-term productivity, and resources committed for each project undertaken.[53] The consequence of this act in the control of the number of environmental statements being submitted on a national level created an information overload for agencies such as the President's Council on Environmental Quality and the Environmental Protection Agency.[54] Much independent detailed information is gendered also because of the rising number of local environmental interest groups. This phenomenon has motivated the need for a better organization of the information exchange on these issues between national and local levels.

---

[51] Ibid., p. 458.

[52] Carpenter, R. S. "Information for Decisions in Environmental Policy," in Science, Vol. 168, No. 3937, 12 June 1970, p. 1320.

[53] Ingram, Helen M. "Information Channels and Environmental Decision Making," in Natural Resources Journal, Vol. 13, January 1973, p. 161-162.

The National Oceanic and Atmospheric Administration (NOAA), which came into existence in October 1970 as part of the Department of Commerce, has responded to the problem of managing environmental science data and information by supporting the Environmental Data Service (EDS). Although the 'Study of Environmental Quality Information Programs' identified 75 resource capabilities in the U.S. Government, many of these are now closely connected with the NOAA or the Environmental Protection Agency. To attempt to gather all environmental information together would be difficult. The EDS was therefore conceived of as a control mechanism to make the most effective, efficient and economic use of environmental data for all users, using an interdisciplinary approach to studies of the total environment.[55] They have at least begun to build the structure of a unified source of environmental science information.

---

[54] Ibid., p. 166.

[55] Freeman, Robert R. "Environmental Information: New Developments in NOAA," in ASIS Proceedings of the 34th Annual Meeting. Denver, Colorado, November 7-11, 1971, Vol. B. Communication for Decision-makers, ed. by Jeanne B. North, 1972, p. 115.

ENVIRONMENTAL INFORMATION AT THE NATIONAL AND REGIONAL LEVEL: CANADA

It is very difficult to determine the precise state of environmental information systems on a national level in Canada. Much of this is due to the fact that governmental action is still in the proposal or design stage. The best source at present in Canada for knowledge concerning the environment is personal contact with people in the field through the 'invisible college.' There is clearly a deficiency in the institutions for exchange of information in the environmental field.

Environment Canada, formed in late 1970 and encompassing parts of a number of independent departments such as the Canadian Wildlife Service, the Environmental Health Services, and the Meteorological Services, does have a library created specifically for its needs. They have recently centralized their holdings in Ottawa, formerly having small sections connected with the Environmental Protection Service, the old forestry group and the wildlife group.[56] Environment Canada is now planning a cooperative national referral centre for interpretative materials on renewable resources and environmental quality. They intend to distribute listings of projects by subject and indicate the sources for these. Material will be sent to university libraries, interested teachers, journalists, commercial publishers and various professional and citizens' groups.[57] In addition, the Canadian Council of Resource and Environment Ministers has agreed that its secretariat would provide a referral service on environmental data to all provincial governments.[58]

---

[56] Keeley, Emily A. "Environment Canada Library," in Canadian Library Journal, Vol. 29, No. 5, September-October 1972, p. 397.

Environment Canada will also be managing the Water Resources Data Systems: Document Reference Centre - a national information system for scientific documents on the economic, behavioral, technical and administrative aspects of the use, planning, management and research of water resources. The system is well described by Battecke and Mercier in a paper delivered to the Fourth Annual Meeting of the American Society for Information Science, Western Canada Chapter. Their analysis of communication criteria in a centralized system operated by a decentralized community; and their description of the proposed cooperative approach based on an 'input for output' principle is thorough and well-researched. The Centre is presently operational offering document references, selected newspaper article references, and access to both the National Science Library's Pollution Information Project and the Department of Justice Data Base.[59] The network is growing as contacts with many government agencies and university research centres enhance the concept of a cooperative information systen on a national scale.

---

[57] News Notes and Miscellany - "Environment Canada," in _Feliciter_, Vol. 19, No. 7, 15 October 1973, p. 8.

[58] _Environmental Information Foundation. News Release._ by the Honourable W. U. Yurko, Minister of the Environment, Alberta, Friday, June 22, 1973.

Overall on the national scale, environmental information is fragmented. Obviously, it is a difficult task to maintain continuity in the collections of the government departments, since the libraries must contend with mergers, transfers and dissolvements. For example, the National Science Library both augments and overlaps with the Environment Canada Library. A Federal Government Library Committee has been set up with the responsibility of organizing the coordination of government libraries, and will inevitably precipitate a more effective national library network for environmental information.

Individual information centres are also being created, such as Imperial Oil Limited's Northern Environment Information System in Calgary, Alberta.[60] Although the system was motivated by commercial interests, it will be invaluable in a national environmental information network.

---

[59] Battecke, J.P.H. and M. A. Mercier. "A National Water Resources Scientific Information System," in ASIS, Western Canada Chapter, Proc. of the Fourth Annual Meeting. Winnipeg, September 28-29, 1972, ed. by A. B. Piternick, 1972, p. 25.

[60] Truswell, J. S. "The Development of a Northern Environment Information System," in ASIS, Western Canada Chapter, Proc. of the Fourth Annual Meeting. Winnipeg, September 28-29, 1972, ed. by A. B. Piternick, 1972, p. 7-18.

Provincially, plans are also being devised for environmental information centers. In June 1973, the Honourable W. J. Yurko, Alberta Minister of the Environment announced that his Department will explore the feasibility of an Environmental Information Foundation for implementation in 1974. Its purpose would be to act as a clearing house for environmental information and link those who want specific data with people or agencies who can provide it.[61] P. Bonnett, Department of the Environment, has been investigating various possibilities such as setting up the Foundation at the Kananaskis Environmental Science Centre near Calgary. A final report has not yet been published.

In British Columbia, a Canadian Press release in the Vancouver Province, Monday, December 3, 1973 revealed that at a B.C. conference on the human environment held in Kamloops, it was recommended that an environmental 'clearing-house' for information be set up as soon as possible. They felt a centre was necessary for the public to obtain accurate environmental information.[62] In an interview with Prof. Milt McLaren, one of the delegates from the conference to present a list of objectives of the Centre to Education Minister Eileen Dailly, he stressed that the network must communicate with all parts of the province and be connected with a directory of learning resources. the proposals are presently being examined.

---

[61] Environmental Information Foundation. News Release.

[62] Canadian Press. "Environment Centre Urged," in Vancouver Province, Monday, December 3, 1973.

Other means of communication are also being encouraged. Of particular relevance was the CASLIS (Canadian Association of Special Libraries and Information Services) Workshop on Environmental Literature held in Calgary, Alberta, in May 1973. Each panelist spoke on the sources of environmental information current within their own library and subject specialty. Consequently the topics discussed varied widely: environmental literature for the layman; public participation; the Alberta government environmental interests; Environment Canada; S.D.I. services; research on environmental geology; and industrial concern. For abstracts of the papers given see: AGORA, Vol. 6, No. 4 and Vol. 7, No. 1, December 1973, p. 4-16.

Later, in June 1973, the Canadian Commission for UNESCO proposed a workshop for Environmental Information Officers to discuss:

(a) Needs of community environmentally concerned groups for interpretative environmental information

(b) Comparative developments in environmental information programmes emphasizing community needs

(c) Inventory assessment and application of governmental environment information programmes.[63]

It is evident that there is concern on both the national level and the regional level in Canada for improvement of environmental information processes.

---

[63] Environmental Information Foundation. News Release.

ENVIRONMENTAL INFORMATION IN SPECIAL LIBRARIES

Many special libraries concerned with aspects of environmental design exist for learned societies, private companies and organized institutes. The majority of these have a specific orientation dependent upon the information requirements of their users. Brenda White carried out a survey of planning libraries in England to ascertain the current state of library provision in planning organizations. She concluded that half the libraries have evolved their own system of arrangement, emphasizing the lack of any suitable classification for planning information as the field broadens to include diverse environmental factors.[64]

In a paper in which she attempted to define the literature for environmental planning collections, White remarks: "Ask ten people what they mean by planning, and you will get ten variations on a theme; ask ten people what they mean when they talk about 'the environment' - which everybody does - and you will find not ten variations on a theme, but ten themes." She continued to describe a research project presently being carried out at the Planning Research Unit of Edinburgh University to analyze information for all planning activities - practice, teaching, and research in all types of organization. There is a recognized need for developing and testing methods of organizing environmental planning information for special libraries.

---

[64] White, Brenda. "A Survey of Planning Libraries," in The Architects' Journal, 25 April 1973, p. 971.

[65] White, Brenda. "Information for Environmental Planning," in ASLIB Proceedings, Vol. 25, No. 8, August 1973, p. 288.

In the United States, the Special Library Association Board of Directors has approved the establishment of a Special Committee on Environmental Information to develop a unifying approach to environmental information and education, and to research innovative ways of information handling.[66] It is a mammoth, complex problem but requires immediate action. The American Institute of Architects sponsored a pre-conference on architectural information and its organization in May 1974, prior to the national convention. They are providing a forum in which librarians in architectural firms, schools and other special libraries may discuss mutual and specialized problems.[67]

Professional and learned societies have an important role to play in environmental design communication. Their traditional functions of publications, national meetings and the support of education can be augmented by supplying a forum for discussion of issues that affect both government policy and private action.

ENVIRONMENTAL INFORMATION IN UNIVERSITY LIBRARIES

The final question to be examined concerns the implications for university libraries which must support new interdisciplinary programmes of the total environment. A few university libraries in Canada have opted to form special interest branches in this area. The University of Waterloo has established an Environment Studies Library with a collection consisting of 2,000 books and reports, 35,000 maps plus periodicals, photographs and films.[68] The Universite de Montreal's Faculte de l'amenagement re-grouped architecture, planning, landscape architecture, industrial design and a fledgling environmental sciences programme into a single management structure, and decentralized the University Library holdings to create an 'Information and Documentation Centre' containing 20,000 volumes located on the Faculty premises. It is reported that Library use by the faculty quadrupled in the first year following the reorganization.[69]

---

[66] Dosa, J. L. "A View of the International Environmental Information Problem," p. 462.

[67] Cosgrove, Susan. "The Institute," in AIA Journal, February 1974, p. 32.

At the University of Calgary, a unique Environmental Design Division was created within the Main Library in 1972 in response to the informational needs of the newly formed Faculty of Environmental Design. Although little re-grouping of existing library resources was carried out, the Division is establishing itself as a bibliographic service in the organization of pamphlets, special materials, periodicals and books related to the subject of man and his environment.

---

[68] University of Waterloo. Waterloo, Ontario. Faculty of Graduate Studies. Calendar, 1972, p. 127.

[69] Perks, W. T. Environmental Design Library Requirements and Organization Plan: Brief to the Vice-President (Academic). The University of Calgary, May 25, 1972, p. 5.

Many other university libraries have control over branch libraries and reading rooms in distinctly treated programmes of architecture, town planning and environmental science. The question of branch libraries in interdisciplinary fields reflects the highly debated centralization versus decentralization theme, and can never be satisfactorally settled, from all points of view. Are branch libraries for the interdisciplinary study of environmental design viable options to information organization? Factors that must be considered are: space allocations and overcrowding; the physical accessibility of library resources to the users; departmental needs for separate libraries (as for accreditation standards); finds sufficient to both construct a facility and support its maintenance plus the inevitable duplication of materials; and finally general university policy and the attitude of the faculty towards the library.[70] Bruno provides historical references in his article "Decentralization in Libraries" for a complete examination of various approaches.[71] Simmons also describes methods to assist in the decision of establishing a branch library and the factors which should be included, through an analysis of borrowing records.[72]

---

[70] Walsh, Robert R. "Branch Library Planning in Universities," in Library Trends, Vol. 18, October 1969, p. 211-212.

[71] Bruno, J. M. "Decentralization in Libraries," in Library Trends, Vol. 19, January 1971, pp. 311-317.

[72] Simmons, Peter. "Library Use Studies as a Source of Management Information: Computer Assisted Transaction Analysis," in ASIS. Western Canada Chapter. Proc. of the Fourth Annual Meeting. Winnipeg, September 28-29, 1972, ed. by A. R. Piternick, 1972, p. 44.

Since the University of British Columbia has committed itself to a policy of decentralization, some studies have been completed to determine the adequacy of branch libraries. In 1971, the users of three branch libraries were surveyed for their opinion on the physical facilities, adequacy of the collection, adequacy of services, and comparison of branch versus central library organization. The majority of responses favoured branch libraries with their selective collections because of the physical convenience, personal service and ease of use of the collection.[73] Problems did arise with interdisciplinary areas since relevant materials were held in other branches. A Library Task Group on Interdisciplinary Studies was established to investigate the situation.[74]

In an interview with Douglas McInnes, Head of Public Services at the U.B.C. Library and initiator of these surveys, he concluded that this Task Group was unsuccessful because of lack of definition and determined goals. Perhaps this is where the greatest conflict arises in interdisciplinary environmental information organization - the inability to adequately define the collection, recognize the ascertainable limits and accept the practical limitations imposed by the real library situation.

---

[73] U.B.C. Library News. Vol. 4, No. 4, April 1971, p. 5.

[74] Piternick, Anne B. "Library Use Studies as a Source of Management Information: Use of Questionnaires," in ASIS. Western Canada Chapter. Proc. of the Fourth Annual Meeting. Winnipeg, September 28-29, 1972, ed. by A. B. Piternick, 1972, p. 55.

In "The Unserved - Academic Library Style," Dougherty suggests, "in order to support interdisciplinary research, academic librarians must overhaul their present philosophies regarding organizational structure and service patterns" - recommending more individualized library services.[75] The conclusions of a recent study by the Environmental Science Information Center (Rockville, Md.) reveal that the full use of environmental information is impaired by fragmentation, incomplete coverage, obsolescent techniques and most important, the "dispersion of relevant information in difficult-to-identify form in much larger basic discipline-oriented services."[76]

Whether university librarians decide to create branch libraries or maintain centralized services, some form of specialized library service must be designed and implemented to serve interdisciplinary studies of the total environment. It is a unique problem-solving situtation requiring an empirical approach to bibliographic control in this field.

PART III: THE LITERATURE OF ENVIRONMENTAL DESIGN

INTRODUCTION

Although there is an identifiable core of information materials, the literature boundaries are ill-defined and continuously fluctuating as environmental design forms its own paradigm. Since university programmes tend to be unique in their orientation, only a general discussion of works covering the broadest viewpoint of environmental design is presented. A selective bibliography in the fields of architecture, urbanism, and town planning provides an indication of reference materials available. In addition, a list of journals important to environmental design is included.

---

[75] Dougherty, Richard M. "The Unserved - Academic Library Style," in American Libraries, Vol. 2, November 1971, p. 1058.

[76] Freeman, R. R. "Environmental Information," p. 118.

FORMS OF MATERIAL

MONOGRAPHS:

A wide variety of forms of material are important as sources of information. There is no shortage of published book literature, as publishers, private societies, government bodies, and individuals are increasingly producing books on the environment and its control. As mentioned earlier, there are as yet no standard textbooks providing comprehensive approaches to the principles and methodology of environmental design. There are, however, professional literature, practical manuals, descriptive and critical studies and speculative literature available.

Sources of information for acquisition of these materials comprise book reviews in periodicals, abstracting services, national and individual bibliographies, publisher's announcements, library publications, and library accession lists. Bibliographies in library-oriented publications include:

Overby, Osmund. "Modern Architecture: The Literature of the 1960's," in Choice, No. 4, 1967, pp. 621-625.

Lee, Norman and Peter Saunders. "Environmental Pollution: A Guide to Recent Publications," in British Book News, March 1973, pp. 140-149.

Harvey, Nigel. "Sources of Information on Environmental Pollution," in ASLIB Proceedings, Vol. 25, No. 8, 1973, pp. 301-304.

White, Brenda. "Information for Environmental Planning," in ASLIB Proceedings, Vol. 25, No. 8, 1973, pp. 288-299.

In Canada, the Central Mortgage and Housing Corporation publishes its recent accessions of books and pamphlets monthly, as well as a subject index to current periodical articles (includes topics: apartments, architecture, cities and towns, recreation, etc.). The National Research Council's Division of Building Research Library issues a list of recent acquisitions of books, reference materials, bibliographies, reports and reprints that are available on loan. Other useful accessions lists are published by the American Institute of Architects' Library (subject arrangement); the Royal Institute of British Architects' Sir Bannister Fletcher Library (U.D.C. arrangement); and the International Union of Local Authorities and the International Federation for Housing and Planning (annotated: Bibliographia IULA-IFHP).

Popular literature is the most difficult to evaluate for acquisition, since it is intended for an unspecified readership. Thus, it varies in quality. It includes the amorphous mass of popular 'crisis' themes with prophecies of doom for mankind. Selection is a very real problem as critical reviews of titles are not available: however, many of these books are published in paperback and are therefore not expensive. A sample of good monographs in this category are:

Ward, Barbara and René Dubos. Only One Earth. London: Andre Deutsch, 1972.

Commoner, Barry. The Closing Circle. London: Jonathan Cape, 1972.

Meadows, Dennis et al. The Limits to Growth. A Report for the Club of Rome's project on the predicament of mankind. New York: Universe Books, 1972.

Another monographic source of ideas about the perceived environment can be found in novels reflecting attitudes towards the environment of certain regions. For example, surveys of Canadian literature containing pertinent information are:

Atwood, Margaret. Survival: A Thematic Guide to Canadian Literature. Toronto: Anansi, 1972.

Waterston, Elizabeth. Survey: A Short History of Canadian Literature. Agincourt, Ontario: Methuen, 1973.

There are many Canadian works to be considered, for example:

Bodsworth, Fred. Last of the Curlews. (conservation, natural history, geography). Toronto: McClelland, 1963.

Roy, Gabrielle. The Cashier. (depicts what the natural environment can do for the city dweller and how devastating the cities forces are). Toronto: McClelland, 1963.

SERIALS:

Serials constitute a great part of the information resource in environmental design because of their immediacy in a newly developing field. The journal is particularly important in academic teaching and research where problem areas are continually under discussion. Information is not only found in a core set of journals, but is located in journals of diverse subject fields. This fact emphasizes the information service aspect of environmental design in retrieving material from obscure sources. The myriad newsletters and house organs of organizations, institutes, agencies, etc. can not be overlooked for announcements of developments in the field, announcements of projects, and for publication information regarding new books, research reports and studies. The number of environmental journals comprising general, popular, technical, professional, scientific and research categories is large and increasing.

In addition, many university presses are publishing series:

Architecture at Rice University. Houston, Texas.

Waterloo University. Division of Environmental Studies. Occasional Papers. Waterloo, Ontario.

Michigan University. School Environments Research Project. Michigan

University of Cambridge. Department of Architecture. Land Use and Built Form Studies. Cambridge, England.

Proceedings of conferences, meetings and seminars are also valuable sources including:

Design Methods Group, Annual Conference. Proceedings. Berkeley, California.

Environmental Design Research Association (EDRA). Annual Conference Proceedings. Raleigh, N.C.

Institute of Environmental Sciences. Annual Meeting. Proceedings. Mt. Prospect, Illinois.

as well as the publications of many national and local institutes interested in the environment.

PAMPHLETS AND EPHEMERAL SOURCES:

A rapid growth in ephemeral publications is taking place. Special studies, surveys, plans and technical documents constitute vital sources for information in environmental design. The kinds of publications are practically limitless. University departments often publish students' research in areas of local importance. For example, at the University of Calgary, the graduate students in the Faculty of Environmental Design produced seven to eight reports in one year, such as:

Nosehill: A Resource Study.

An Urban Transportation Study.

Urban Form as an Interpretation of Philosophy.

Lake Louise Development. A Brief for the National Parks Branch Public Hearings on the Proposed Development for the Village Lake Louise Planning Area.

Bibliographies are frequently published through a variety of means in pamphlet form:

Environmental Protection Agency. An Environmental Bibliography, 1971, U.S. Government publication.

OECD and Environment. A Bibliography. Paris: Environment Directorate, 1972, international government publication.

Gerontology Project Group: Research in Environmental Analysis and Design for the Aging. Ithaca, New York: Cornell University. College of Human Ecology, Department of Design and Environmental Analysis, 1971, university publication.

The North American Environment. A List of Books. U.S.: Clarke Irwin, 1973, publisher's publication.

Dee, S. R. A Basic Environmental Collection. C.P.L. Exchange Bibliography #410, June 1973, personal bibliography.

Fitzpatrick, Connie. A Selected List of Current Government Publications Dealing with Pollution. Reference Publication No. 51. Vancouver, B.C. U.B.C. Library, 1974, library publication.

Meshenberg, M. J. Environmental Planning: A Selected Annotated Bibliography. Chicago: ASPO, December 1970, personal bibliography.

Man and His Environment; Selected Government Publications. 1950-1970. Indiana: Indiana University Library, April 1970, library publication.

Bibliographies included in journals can be most useful and could be duplicated and added to the pamphlet collection. Examples are:

"An Annotated List of Outstanding Books on the Environment Published in 1971 and 1972," in National Association for Environmental Education. Monthly Newsletter. Special Issue, Vol. 1, No. 9, 1973.

"CASLIS Workshop on Environmental Literature," in AGORA; the Bulletin of the Canadian Association of Special Libraries and Information Services, Vol. 6, No. 4 and Vol. 7, No. 1 (combined issue), December 1973.

Friedlander, Janet. "Environmental Chemistry - An Examination of Available Literature," in Journal of Chemical Documentation, Vol. 13, No. 4, 1973.

As well as bibliographies, governments issue many special reports, and indexes to them. The U.S. Department of Commerce, National Technical Information Service offers weekly abstracts to their publications in the fields of environmental pollution and control, building technology and transportation. For Canadian material, Environment Canada publishes: Environmental-

Social Program. Northern Pipelines. New Publications (includes reports, material on open file, and surficial geology and landform maps); the National Research Council Division of Building Research publishes a bibliography series; Central Mortgage and Housing publishes a variety of useful pamphlets; and many other departments and committees publish ephemeral materials of current interest.

SPECIAL MATERIALS:

Special materials that are useful include films, slides, microforms, maps, plans, games and pictures. These materials are becoming increasingly more available. The Environment Film Review (New York: Environment Information Center) is an annual reference guide, index and critical evaluation of environment films. The National Film Board of Canada has produced many films related to environmental design, and the following examples from their annotated guide indicate the potential sources for this media:

Epilogue

15 min. 47 sec. color. 35mm. & 16mm.
The film employs multi-image techniques to contrast scenes of natural grandeur with such less favorable images as fouled rivers and despoiled countryside resulting from heedless exploitation of the natural environment.

Man: The Polluter

52 min. 17 sec. color. 35mm. & 16mm.
A richly illustrated cartoon film that enlarges on man's capacity to foul his own nest and to ignore it. Two men, an optimist and a pessimist, present their hopes and doubts about the world's precarious situation, and the animation sequences illustrate their points with unflagging energy and imagination. (A co-production of Zagreb film and NFB)

A is for Architecture

13 min. 48 sec. color. 16mm.
A panorama of ancient cities, palaces and temples whose splendor has awed mankind. The film moves from one tradition to another, illustrating how each reflects the sentiments and values of its time from the massive temples of the Pharoahs to the soaring skyscrapers of today.

Lewis Mumford on the City Series

Series of 6 films. b&w. 16mm.
Based on Lewis Mumford's book, The City in History, and filmed in many cities of the world, this series is a master-view of all the achievements, failures and promises of our urban culture. ("The City: Heaven and Hell;" "The City: Cars or People;" "The City and Its Region;" "The Heart of the City;" "The City as Man's Home;" "The City and the Future.")

Like Rings on Water

16 min. 11 sec. b&w. 16mm.
An English version of a Swedish film questioning the way our cities grow. Sitting beside a stream tossing pebbles, a man is reminded, by the spreading of the rings on the surface, of the similar pattern of urban sprawl - rings of industry alternating with rings of dwellings until access to the center is choked off. What the alternative might be is shown in an animation sequence - a design somewhat resembling a snowflake - with the new city imagined as one of limited size and linked to satellite towns by roads radiating from the center.

Information on videotape is not encountered frequently, but should not be overlooked for both local presentations and commercial productions. An example is Arcology, 1971, in which Paolo Soleri discusses his fusion of architecture and ecology as a solution to impending ecological disaster. Records may also be useful, such as Spaceship Earth (California: Addison-Wesley, 1972), which is based on broadcasts from the CBS News. Microforms are available as a form of publication on almost any subject. The Bibliography of Doctoral Research on Ecology and the Environment (University Microfilms, 1972) lists over 900 dissertations in this field.

A slide and picture collection is a necessary resource for a visual record of the natural and cultural assets of a region. Architectural design, natural areas, renderings, urban development and resources are depicted visually to serve as an accompaniment to lectures and presentations, providing a useful learning tool.

Maps illustrate topography, resources, parks, population distribution and urban design. In the latter they frequently are elements of master plans. Since each town or region has its own peculiar problems, the plans reveal the approach taken to resolve these problems. They may be produced by the government for their planning department, or they may be created as development plans, and are hence invaluable as specific sources of information.

A unique form of special materials has recently evolved. Although it may not be considered to be of academic significance, it could, perhaps, be used as a more amusing learning device. The increase in the number of environmental games in the last few years has paralled the growth in public interest. Examples are:

> Smog. Cambridge, Mass: Urban Systems, 1971.
> A game created by Harvard and MIT students about air pollution.

New Town: The Environmental Game of Town Planning. New Jersey: Harwell Associates, 1971.
Purportedly used as a modern teaching aid in many college and city planning departments.

Recycling Resources. New York: Continental Can Co. Inc., 1971.
A multi-media teaching game for children to adults.

The Great Ecology Jigsaw Puzzle. Cambridge, Mass.: Urban Systems, 1972.
An ecological design created by Philadelphia Earth Week committee.

ORGANIZATION OF A COLLECTION FOR ENVIRONMENTAL DESIGN

In organizing a collection of interdisciplinary materials for a specific group of people, the highest priority must be given to the approach most suitable for those users. Needless to say, information cannot be transmitted efficiently if it is not analyzed in commonly accepted terms that are amenable to modification as new terminology supercedes the formerly popular. Since subject classifications tend to be arbitrary and inelastic especially in fields that are undergoing redefinition, personal contact of the librarian with the users can minimize the pitfalls in the detailing of a rational philosophy for the arrangement of and access to the collection.

The working vocabulary or subject thesaurus is the most essential element of the system. If necessary it can be superimposed on to a common classification scheme such as the Library of Congress. The actual classification numbers used would undoubtedly span the complete range as the following sampling illustrates:

HC 79-110	ENVIRONMENTAL MANAGEMENT
HT 1-400	CITY PLANNING
KB 175-2176	ENVIRONMENTAL LAW
KD 174-176	PLANNING LAW
NA 1-8999	ARCHITECTURE
NA 9000-9500	CITY PLANNING
NK 1700-3505	INTERIOR DESIGN
QH 541-542	ECOLOGY OF THE ENVIRONMENT
RA 565	ENVIRONMENTAL HEALTH
SB 469-479	LANDSCAPE ARCHITECTURE
SB 481-485	PARKS AND RESERVES
SD 411-428	FOREST PRESERVATION
SK 351-579	WILDLIFE PROTECTION
TA 400-1205	BUILDING MATERIALS
TD 172-899	POLLUTION
TG 1-9999	BRIDGES AND ROOFS
TH 1-9000	BUILDING CONSTRUCTION

Although the Library of Congress Classification Scheme may not be the ideal shelf arrangement for browsing capabilities, the size of a separate collection in this field should create little hindrance for scanning the monographic section. In addition, there would still be an access source which would unify all forms of material and would inter-relate formerly disparate subjects.

A subject thesaurus using workable terms is perhaps the most useful organization tool for an interdisciplinary collection comprising a variety of publication forms. But it is also the most difficult to produce, which is why librarians continue to fall back on traditional established subject heading schemes. Compatable definitions of terms, hierarchical structures, an understanding of the assumptions of the discipline, relationships of terms, and geographical emphasis all contribute to the content of a thesaurus.

There is no published thesaurus suitable for the integration of the subjects of environmental design. Thus, the arrangement of terms must be particular to any working situation. This can best be effected through a knowledgeable communication with the potential users, and through an understanding of the subject field itself. Some thesauri may be used as guides to terminology development:

Boldt, Roger and Charper, Gerald. Thesaurus Used in the Program in Urban and Regional Planning. University of Iowa. Council for Planning Librarians, Exchange Bibliography #195.

Mason, B. M. and Antony Thompson. List of Subject Headings on Architecture and Related Subjects. London: Royal Institute of British Architects, 1968. Used in the periodical subject index of the Sir Bannister Fletcher library.

Project Urbandoc. Urbandoc Thesaurus. New York: City University of New York. Research Foundation. Field test ed., 1967.

Shillaber, Caroline. A Library Classification for City and Regional Planning: A Revision of Pray and Kimbell's City Planning Classification of 1913. Cambridge, Mass.: Harvard City Planning Studies, #18, 1973.

Indexes in current periodicals often provide excellent sources for the popular working vocabulary, although they supply little help in determining the basic rationale of the thesaurus. Rather, terms must be examined for their fit into the thesaurus' structure.

In addition, the Planning Research Unit of Edinburgh University began developing a linked classification and thesaurus in January 1973, that would eventually be "capable of application to any situation, from the small library to the national computer-based information service of the future."[77]

The basis for a thesaurus for environmental design must be well-researched for its applicability to any given system. With a well-designed thesaurus, all forms of material in the collection can be integrated to create complete subject access. The subject terms can be applied to monographs, periodicals, technical pamphlets, newspaper clippings, article references, samples, games and even audio-visual materials. This would provide the optimum method for ease of access to users. Concomitantly, specified terms from the thesaurus may be used as an arrangement device for a vertical file collection.

In some cases, visual materials may be more adequately indexed separately. For example, A Slide Classification System for the Organization and Automatic Indexing of Interdisciplinary Collections of Slides and Pictures by Wendell Simons and Luraine C. Tansey, Santa Cruz: University of California, 1970, may be more suitable for application to large slide and picture collections.*

---

[77] White, Brenda. "Information for Environmental Planning," in ASLIB Proceedings, Vol. 25, No. 8, 1973, p. 298.

SPECIAL SERVICES:

Besides providing subject access to the information in environmental design, the librarian should also maintain a programme of current awareness for users. This may comprise selective dissemination of information on a regular basis, or circulation of an accession list if the collection is housed separately. This is an invaluable service as users can recognize new topics in publications without waiting until they are indexed. In an interdisciplinary subject field such as environmental design, it is particularly important, and should ideally include new accessions to any part of the library which are relevant. If the library has its acquisitions or circulation system automated, this is fairly simple to effect although it requires a significant amount of planning.

At the beginning of 1973, the U.B.C. Library began offering a SDI programme for academic departments and faculty.[78] The terms of interest profile (which must first be drawn up on the parameters of book classification, author, title key-words and library locations) are matched against the Library's current accession file to produce individual computer listings of newly catalogued monographs in particular subject fields.

---

*For other publications see: Bogar, Candace. Annotated Bibliography on the Cataloguing and Classification of Films, Pictures, and Slides in Architecture, City Planning and Art. Council of Planning Librarians. Exchange Bibliography #405, May 1973, includes procedures for organizing multi-media collections.

[78] "Current Awareness for New Accessions," in U.B.C. Library News, Vol. 6, No. 1, 1973, p. 2.

If this type of service is not feasible, even a simple, non-alphabetic listing of titles as they are acquired is useful. Personal contact with users cannot be overstressed since a reciprocal exchange of knowledge contributes to library information service. It will aid the librarian in evaluating the material, purchasing acquisitions, developing specific services for users needs, and generally organizing the collection for optimum information retrieval.

ANNOTATED REFERENCE BIBLIOGRAPHY FOR ENVIRONMENTAL DESIGN

Because the environmental design field is comparatively new and its areas of responsibility are not clearly defined, indexes, abstracts, bibliographies, directories, etc. of traditional disciplines must be consulted for an overall view of the subject. The following bibliography provides selected information sources related to environmental design. To be comprehensive in this many-facetted area is to impose a highly personal definition; and since each library situation is unique in its emphasis, this quide provides representative types of reference materials which may be consulted in literature searching. The major emphasis is on materials in architecture, urbanism and environmental science, although general reference sources are suggested. This paper's final bibliography should also be consulted for major book titles.

I. GENERAL

Applied Science and Technology Index. Monthly. Arranged by subject, no author index. Covers engineering, general aspects of architecture and building. Some references of pertinence to planning may be found.

Bibliographic Index. Semi-annual. A bibliography of bibliographies, with architecture, building types and structural engineering well represented.

Business Periodicals Index. Monthly; annual cumulations. Subject index to information on management, economic statistics, personnel administration, business involvement in urban planning, housing finance, etc.

Canadian Periodicals Index. Monthly; annual cumulations. Many English language Canadian journals are indexed here and nowhere else. e.g. Habitat, Canadian Architect, Community Planning Review, etc.

Engineering Index. Monthly; annual cumulations. Abstract service covering engineering and related disciplines including city planning, transportation, environmental systems, etc. Coverage of journals is international.

Readers Guide to Periodical Literature. Semi-monthly; cumulations. General index to people, places, events in the news, including references to articles in popular journals such as Newsweek, Time, House Beautiful, etc.

Sociological Abstracts. Monthly. International abstracting service which has sections on urban structures and ecology, environmental interactions, planning, forecasting and speculation.

II. ARCHITECTURE AND BUILDING

ABSTRACTS AND INDEXES

Architectural Index. Annual. Indexes select architectural journals such as Architectural Forum, House and Home, Progressive Architecture, AIA Journal, etc. Good source of information on the current work of contemporary architects.

Architectural Research Review. Bi-weekly. Articles in 200 U.S. and foreign architectural journals are briefly described in a table of contents format. Proposes to be a current technical architecture alerting service.

Art Index. Quarterly; annual cumulations. Major architectural journals are covered with both subject and author references. Presently the best source for locating current information on architecture.

Avery Index to Architectural Periodicals. Second ed. 1973, 15 vols. These volumes represent an index to periodicals received by the Columbia University Avery Architectural Library. Includes information on architects, architecture, interior decoration, furniture, city planning, housing and the decorative arts. The major architectural periodicals and certain European journals are indexed back to their founding dates.

Avery Memorial Architecture Library. Columbia University Catalogue. Second ed. 1968, 19 vols., supplement. A Union catalog - by author, subject and selectively by title - of all art and architectural books in the Columbia library system. The subject of architecture is covered in its widest possible sense. Library of Congress subject headings.

Building Science Abstracts (HMSO). Monthly. 245 journals are scanned for articles on materials, construction, engineering, design and environment. Good for current awareness of British publications.

Canadian Building Abstracts (Canada, National Research Council). Semi-annual. Surveys articles pertaining to architecture, building materials, housing, structural design and town planning that are published in Canadian technical journals.

Current Contents: Engineering and Technology. Weekly. Reproduces the table of contents of over six hundred journals on acoustics, building technology, civil engineering, design engineering, materials, plastics, and many other technical subjects. Each issue has an author index, but no subject index.

Harvard University. Graduate School of Design. Library Catalogue. 1968, Vol. 1 - 44. A catalogue of the 140,000 holdings of this Library with subject, author and title access. Includes pamphlet material. Subject indexing is unusually comprehensive to create a major source of reference to authors, designers and subjects.

Man-Environment Systems. Bi-monthly. (Merger of "Architectural Psychology" and "Man and His Environment".) Contains extensive abstracts of recently published or unpublished dissertations, theses, and research project reports bearing upon the interface between the social sciences and environmental design; as well as news of conferences and academic programmes. Loose-leaf format suitable for current awareness and book selection.

RIBA. Architectural Periodicals Index (Royal Institute of British Architects) Quarterly; annual cumulations. Includes over 2000 entries a year in classified order; covers the world's architectural, building and planning journals.

DICTIONARIES, DIRECTORIES, HANDBOOKS, BIBLIOGRAPHIES

American Architects Directory (American Institute of Architects) 1970. Names of 22,500 members of the AIA and selected non-members, with biographical sketches for over 5,000 and descriptions of 3,500 architectural firms.

ASTM Standards in Building Codes (American Society for Testing and Materials) 10th ed. 1972. Includes ASTM standards that are referenced in building codes of states, cities and municipalities, and also includes national model codes.

The Architect's Guide to Mechanical Systems. F. J. Andrews, 1966. A handbook for mechanical systems for all kinds of buildings. Many photos and diagrams are included.

Architectural Graphic Standards. C. G. Ramsey and H. R. Sleeper, sixth ed., 1970. A classic guide to graphic standards.

Avery Obituary Index of Architects and Artists. Columbia University. Avery Architectural Library. 1963. This index contains reproductions of 13,500 catalog cards. Name, birth and death dates are given, but no biographical information. The source of the obituary is named so that readers can search out further information if they wish.

Biographical Dictionary of American Architects. Biographies of 2000 American architects, 1740-1952, 1956.

Concise Encyclopedia of Architecture. Martin S. Brigss, 1959. Limited to architecture with few technical entries. All styles and periods of architecture are covered. Most well-known architects are listed.

Dictionary of Architecture. Henry H. Saylor, 1958. Many of the newer technical terms will not be found in this dictionary, but it is still useful.

Dictionary of Architecture and Building. Russell Sturgis, 1901. Includes a lengthy bibliography and is historically important and useful.

Dictionary of Architecture and Building Trades. A. Zboinski and L. Tyszynski, eds., 1964. Very useful for translating terms from German, Polish, and Russian to English.

Directory of Behavior and Environmental Design. Third ed., 1969. Persons practicing the various disciplines which deal with the relationships between human behavior and physical design are listed here. Along with each person's interests is a list of their publications.

Directory of Canadian Building Trade Associations. Ottawa, National Research Council, 1969. Covers national and provincial associations and societies connected with the construction industry.

Directory of Official Architects and Planners. 1972. Includes names of British executive officers responsible for architectural and town planning matters in governmental departments, local authorities, statuatory undertakings and private firms.

Encyclopedia of Modern Architecture. Gerd Hatze, ed., 1963. A valuable short encyclopedia which was translated from German and has been published in several languages. It has good coverage of 20th century design. Many articles contain lengthy bibliographies.

Handbook of Air-Conditioning, Heating, and Ventilating. Clifford Strock and R. L. Koral, eds., 1965. Data is presented in tables, graphs, formulas, and maps for fast reference. The handbook covers design, installation and maintenance of systems.

National Building Code of Canada. Ottawa. National Research Council, fifth ed., 1970.

Penguin Dictionary of Architecture. John Fleming et al, 1972. Covers European and American architectural terms from medieval times to the 20th century.

Register of Architects. 1973. Names and addresses of architects registered in the Architects Registration Council of the United Kingdom.

Time-Saver Standards; A Handbook of Architectural Design. John Hancock Callender, fourth ed., 1966. A workbook of architectural design standards. Formulas, tables and graphs for structural design of homes, offices, shops, theaters, schools; and for site planning, materials, heating, plumbing, lighting.

III. URBANISM

ABSTRACTS AND INDEXES

ASPO Index to Proceedings of National Planning Conferences. 1909-1961. 1963. (American Society of Planning Officials) Indexed alphabetically by authors of papers, subjects discussed and geographic locations mentioned. Dated but useful.

Current Literature in Traffic and Transportation (Northwestern University Transportation Center Library). Monthly. Articles on all forms of transportation: air, rail, highway, water, pipeline; on urban travel; and on traffic safety are indexed.

Ekistic Index. Monthly. Over 600 journals from 50 countries are subject indexed for planning, architecture and related subjects.

Geographical Abstracts. Bi-monthly; annual cumulations. Published in six sections. Section C, on economic geography; section D, on social geography; and section F, on regional and community planning are of particular interest to planners. Abstracts are indexed by author and region.

Great Britain. Department of the Environment. Library Bulletin. Bi-monthly. Abstracts covering books and articles in the fields of local government and development, planning, transportation, housing, new towns, water supply, sewage disposal, pollution, country-side, recreation, economics and management.

Index to Current Urban Documents. Quarterly. Indexes official publications of the largest cities and counties in the United States and Canada.

Index to Legal Periodicals. Monthly. A three part index to current law journals: subject and authors, table of cases, and book review index.

Land Use Abstracts (Urban Land Institute). Monthly. Abstracts of new publications in the field of urbanism.

Population Index. Quarterly. Valuable demographic information can be obtained from this index although Canadian statistics are not too well covered.

Public Affairs Information Service Bulletin. Weekly. Best approach to planning literature presently available. Subject index to books and pamphlets on economics, urban planning, land utilization, housing, the social aspects of building, public administration and social conditions.

Quarterly Digest of Urban and Regional Research. Fairly complete reviews of recently published reports of research in: physical environment, demography and human behavior, urban and regional economy, social services, land use and transportation, and government.

Sage Urban Studies Abstracts. Quarterly. 1000 abstracts each year covering literature on all aspects of urban studies.

Selected Rand Abstracts. Quarterly. This is a complete list of the unclassified publications of a large consulting firm - the Rand Corporation.

United States. Dept. of Housing and Urban Development. Library and Information Division. Dictionary Catalog. 19 vols., 1973. Comprehensive index to both current and retrospective publications: books, pamphlets, technical reports, U.S. Government documents, films, periodical articles on housing, urban and sub-urban community planning, metropolitan areas and the total built environment. Includes law and legislation, urban renewal, architecture, land use, economic, environmental factors.

Urban and Regional References (Canadian Council on Urban and Regional Research). 1945-1962; annual supplements. An annotated, classified and indexed bibliography on material relating to urban affairs in Canada, under subjects: physical environment, population and social characteristics, transportation and communication, etc.

DICTIONARIES, DIRECTORIES, HANDBOOKS, BIBLIOGRAPHIES

American Institute of Planners. Handbook and Roster. Annual. List of members of the Institute by name and geographical location.

The Community Builder's Handbook (Urban Land Institute). 1968. Practical reference manual for residential and commercial land development.

Council of Planning Librarians. Exchange Bibliographies. Irregular. The only organized source of bibliographies on planning and related fields. Includes academic and professional subjects and a wide orientation to environmental design concepts.

Encyclopedia of Urban Planning. Arnold Whittick, 1974. Dictionary arrangement of topics with emphasis on geographical areas.

Hud Statistical Yearbook (U.S. Department of Housing and Urban Development). Annual. Comprehensive compilation of statistics on population, education, income, housing, construction, model cities, urban research and other housing functions of the government.

International Glossary of Technical Terms Used in Housing and Planning. Second ed., 1951. An alphabetical sequence of planning terms in English, French, German, Italian and Spanish by the International Federation of Housing and Town Planning in Amsterdam.

The Language of Cities: A Glossary of Terms. Charles Abrams, 1971. Definitions of terms related to urban studies.

Social and Economic Information for Urban Planning. University of Chicago. Center for Urban Studies, 1969, Vol. I: Methods of selecting and using information, Vol. II: Directory of sources.

U.S. Dept. of Housing and Urban Development. Urban Renewal Directory. Semi-annual. Directory of local renewal programmes approved for federal aid. Includes name of programme, date planned, executed and completed, and amount of money appropriated and disbursed.

Urbandoc Thesaurus. 1967. A standardized list of terms used for indexing planning literature.

IV. ENVIRONMENTAL SCIENCE

ABSTRACTS AND INDEXES

Biological Abstracts. Semi-monthly; annual cumulations. Comprehensive international index of biological publications. Conservation-related subject headings include: agronomy, ecology, environmental biology, pollution, air, water, and soil, resource management, soil science, wildlife management.

Bioresearch Index. Monthly. A companion publication to Biological Abstracts. Contains indexes to research reports not covered by that publication.

Chemical Abstracts. Weekly; cumulative index. Comprehensive coverage of all scientific and technical papers containing information of chemical and chemical engineering interest.

Denver Public Library. Conservation Library. Catalogue. 1974, 6 vols. Considered to be the most comprehensive collection of its kind in the world. A broad range of subjects related to the environment in the form of books, pamphlets, government documents, tapes, photographs, manuscripts, etc. are included. Author. title and subject access.

Environment Information Access. The Environment Index. Bi-weekly; annual cumulations. Most comprehensive reference source to environmental literature. Abstracts 1000 periodicals, reports, documents and books representing every aspect of man's relation to the natural environment.

Environmental Periodicals Bibliography; Indexed Article Titles. 9 issues per year. Current awareness service to 260 U.S. and foreign periodicals on environmental and related studies. Reproduces the tables of contents of these periodicals.

Environmental Science Citation Index. Monthly. An annotated current information retrieval system providing interdisciplinary coverage of over 2,000 international publications through keyword direct access.

Oceanic Instrumentation Reporter and Ocean Engineering. Monthly. Current awareness abstract publication covering journal literature, technical reports, patents. Emphasis on marine and estuarine pollution and its detection, analysis, measurment, abatement.

Pollution Abstracts. Bi-monthly; cumulative index. Covers popular and scholarly journals, technical reports, monographs. Each issue contains: list of publications searched, calendar of events, list of abstracts and patents.

Psychology Abstracts. Monthly; annual cumulations. Non-evaluative summaries of the world's literature in psychology and related disciplines. Classified arrangement. Includes author and brief subject index.

References (Canadian Council of Resource Ministers). 10 issues per year. Present an overview of the literature, legislation and significant events in the fields of material resources under subject headings: natural resources and environment, wildlife, man and resources, etc.

Water Pollution Abstracts. Monthly. Most importment British abstracting service in the field of water pollution. Topical arrangement with subject and author indexes.

Water Resources Abstracts. Monthly. Topical arrangement; format is loose-leaf card announcement. Has no indexes and cannot be used for retrospective searching. A current awareness tool.

Wildlife Abstracts. 1935-1960. U.S. Fish and Wildlife Service.

DICTIONARIES, DIRECTORIES, HANDBOOKS, BIBLIOGRAPHIES

Advances in Environmental Science and Technology. 1969 - ; irregular. Review articles covering both general and technical topics. Covers all aspects of the field.

Conservation Directory (National Wildlife Federation). 1972. A directory listing organizations, agencies and officials concerned with use and management of natural resources and wildlife.

Directory of Environmental Information Sources (National Foundation for Environmental Control). Carles E. Thibeau, second ed., 1972. Over 3,000 listings of governmental agencies, professional organizations, trade associations and private groups dealing with ecology and conservation. Also lists publications, audio-visual aids and conference proceedings. Includes a survey of current interdisciplinary environmental programs being offered at colleges and universities in the U.S.

The Encyclopedia of Geochemistry and Environmental Sciences. Rhodes W. Fairbridge, ed., 1972.

Handbook of Environmental Control. Chemical Rubber Company, 1973. Vol. I: Air pollution, Vol. II: Solid waste.

Institute of Environmental Sciences. Proceedings of the Annual Meeting, annual. Each annual conference has a 'theme title', e.g. "Man and the Environment" - 1969; "Environmental Challenge of the '70's" - 1970. Articles cover all aspects of environmental/pollution problems.

McGraw-Hill Encyclopedia of Science and Technology. 1966, 15 vols. Comprehensive encyclopedia covering all aspects of science and technology, excluding behavioral and medical.

The New York Times Encyclopedic Dictionary of the Environment. Paul Sarhoff, 1971.

Water and Pollution Control. Directory. Water and Pollution Control is the only Canadian publication devoted exclusively to water conservation, treatment, supply and purification. Directory provides information on Canadian Government organizations and industry. September issue of the journal.

The Water Encyclopedia. David Keith Todd, ed. Water Information Center, 1970. Practical reference volume containing a variety of water resources data, facts, and statistics.

Water Pollution Control Federation. Directory. Standard organizational directory. Includes such information as lists of committees, membership, by-laws, products. Special issue of the Water Pollution Control Federation Journal.

PERIODICALS

Periodicals constitute one of the most valuable resources for information in environmental design. The fact that it is a new field indicates the necessity for using periodicals that are up to date. Current articles in professional, academic and news journals are invaluable for teaching and research, since they comprise new ideas, current trends and analyses of the field.

Although there are 'basic' journals in each of the areas of architecture, urbanism and environmental science, information on environmental design in all of its aspects is found in journals of many other subject disciplines. To this extent, the following list of periodicals includes a comprehensive coverage of the subject matter - from general scientific journals to newsletters of special interest groups. This list may be complemented by periodicals of local or regional interest and by those pertinent to specific aims and objectives of the individual library.

Emphasis has been placed on journals that would be important to environmental studies in Canada. Many municipal and provincial publications are omitted, since these are specific to the region from which they originate. Thus, the following selection illustrate the number of titles that are currently available. Dates of origin for each journal serve as an identification tool and as an indication of backruns. The place of publication is given to identify regional bias. For periodicals that may be difficult to identify by title, or have important affiliations, the publisher (society, institute, government department, etc.) is included.

ENVIRONMENTAL DESIGN: LIST OF PERIODICALS

AAQ/Architectural Association Quarterly. 1969. Oxford, England.

Abitare. Italy.

AIA Journal (American Institute of Architects). 1944. Washington, D.C.

Air Pollution Control Association. Journal, 1951. Pittsburgh, Pa.

Alternatives: Perspectives on Society and Environment. Trent University; Peterborough, Ontario.

Ambio; a journal of the human environment, research and management (Royal Swedish Academy of Science). 1972. Oslo, Norway.

American City Magazine. 1909. Pittsfield, Mass.

American Institute of Landscape Architects. Journal, 1965. California.

American Institute of Planners. Journal, 1925, Washington, D.C.

American Society of Civil Engineers: Environmental Engineering Division. Journal. New York.

American Society of Civil Engineers: Urban Planning and Development Division. Journal. New York.

Anthos (International Federation of Landscape Architects). 1962. Switzerland.

Architect. 1854. London, England. (Incorporates: Industrialized Building Systems and Components)

Architectoniki. 1957. Athens, Greece. (Temporarily suspended)

Architects' Journal. 1895. London, England.

Architectural Design. 1930. London, England.

Architectural Digest; the connoisseur's magazine of fine interior design. 1920. Los Angeles, California.

Architectural Forum. 1892. New York.

Architectural Record. 1891. New York.

Architectural Research and Teaching (Royal Institute of British Architects and American Institute of Architects). 1970. London, England.

Architectural Review. 1897. London, England.

Architectural Science Review. 1958. Australia.

Architecture Canada (Formerly: Royal Architectural Institute of Canada. Journal). Ceased publication, 1973. Toronto, Ontario.

Architecture Concept. 1946. Montreal, Quebec.

l'Architecture D'Aujourd'Hui. 1929. Boulogne, France.

l'Architecture Francaise; recherche-formes interieures - arts - urbanisme. 1940. Paris, France.

Architecture in Australia (Royal Australian Institute of Architects). 1904. Sidney, Australia.

Architecture New Jersey. Vol. 7, 1973. New Jersey.

Architecture Plus; the international magazine of architecture. 1973. New York.

Architekt und der Bauingenieur. (Fachorgan des Berufsverbandes freischaffender Architekten und Bauingenieure E.V. und des Bundes der Architekten und Ingenieure der Akademie fuer Bautechnik). 1960. West Germany.

Arkitektur. 1957. Copenhagen, Denmark.

Arkitektur; the Swedish review of architecture. 1901. Stockholm, Sweden.

Architektur und Wohnwelt. 1890. Stüttgart, West Germany. (Formerly: Architektur und Wohnform)

Arkitehti/Finnish Architectural Review. 1904. Helnsinki, Finland.

Association of Collegiate Schools of Planning. Bulletin. 1963. East Lansing, Michigan.

Atmospheric Environment; an international journal. Vol. 5, 1971. New York.

A&U; revue Africaine d'Architecture et d'Urbanisme. 1964. Morocco.

Batiment. 1926. Montreal, Quebec.

Bauen und Wohnen. 1946. Zurich, Switzerland.

Biological Conservation. 1968. Essex, England.

British Columbia Conservationist. 1970. Kamloops, B.C.

Building; for the design and construction team. 1842. London, England. (Formerly: Builder)

Building Research News. 1962. (National Research Council) Ottawa, Ontario.

Building Systems Design. 1904. Brooklyn, New York.

Built Environment. 1937. London, England. (Formerly: Official Architect and Planning)

Bulletin of Environmental Contamination and Toxicology. 1966. West Germany.

CF Letter; a report on environmental issues. 1966. (Conservation Foundation) Washington, D.C.

Canadian Architect. 1956. Ontario, Canada.

Canadian Building Digest. (National Research Council). 1960. Ottawa, Ontario.

Canadian Interiors. 1964. Toronto, Ontario.

Casabella; rivista di urbanistica, architecttura, e disegno industriale. 1928. Milan, Italy.

Catalyst for Environmental Quality. 1970. New York.

Clip-Kit; studies in environmental design. 1966. London, England.

Community Planning Review/Revue Canadienne D'Urbanisme (Community Planning Assn. of Canada). 1951. Ottawa, Ontario.

Concept; man-made environment and commercial interior design. 1970. Victoria, Australia.

Conservation News. (National Wildlife Federation). 1938. Washington, D.C.

Conservation Report (N.W.F.). 1938. Washington, D.C.

Conservationist (N.Y. State Environmental Conservation Dept.). 1946. New York.

Contact in Urban and Regional Affairs (Div. of Environmental Studies, University of Waterloo). Waterloo, Ontario.

Cry California. 1965. San Francisco.

Design and Environment; the interprofessional magazine for architects, engineers, city planners, landscape architects, designers. 1970. New York.

Domus; architettura arredamento arte. 1928. Milan, Italy.

Ecolibrium. 1972. Houston, Texas. (pro-industry with environmental protection)

Ecolog; the common-sense bridge between business and environment. 1971. New York.

Eco/Log Week (Canadian environmental newsletter)

Ekistics; reviews on the problems and science of human settlements. 1955. Athens, Greece.

Environment. 1958. St. Louis, Mo. (Formerly: Scientist and Citizen)

Environment Action Bulletin. 1971. Emmaus, Pennsylvania. (pro-conservationist)

Environment and Behavior. 1969. Beverly Hills, California.

Environment and Planning. 1969. London, England.

The Environment This Month. 1972. Lancaster, England.

Environmental Action. 1970. Washington, D.C.

Environmental Education Report. 1973. Washington, D.C.

Environmental Health. 1971. Amsterdam, Netherlands.

Environmental Law. 1971. Portland, Oregon.

Environmental Letters. 1971. New York.

Environmental Resource (International Association for Advancement of Earth and Environmental Sciences). 1973. Chicago, Illinois.

Environmental Science and Technology (American Chemical Society). 1967. Washington, D.C.

Environmental Spectrum. 1968. New Jersey.

Espaces et Societes; revue critique international de l'amenagement de l'architecture et de l'urbanisation. 1970. Paris, France.

Futurist; a journal of forecasts trends and ideas about the future. (World Future Society) Vol. 2, 1968. Washington, D.C.

Habitat. (Central Mortgage and Housing Corp.). 1958. Ottawa, Ontario.

HUD Challenge (U.S. Dept. of Housing and Urban Development). 1969. Washington, D.C.

HUD Newsletter (U.S. Dept. of Housing and Urban Development). 1970. Washington, D.C.

House and Home. 1952. New York.

Housing and Planning Review; the journal of the national housing and town planning council. Vol. 29, 1973. London, England.

Housing and Urban Development Trends (U.S. Dept. of Housing and Urban Development). 1948. Washington, D.C. (Formerly: Housing Statistics)

Human Ecology; an interdisciplinary journal. 1972. New York.

Human Settlements (United Nations). 1971. New York.

Industrialization Forum; building systems, construction, analysis research. (Faculte d'Amenagement. Universite de Montreal). 1969. Montreal, Quebec.

Institut d'Amenagement et d'Urbanisme de la Region Parisienne. Cahiers. 1964. Paris, France.

International Federation for Housing and Planning. Bulletin. 1961. The Hague, Netherlands.

International Journal of Environmental Studies. 1970. London, England.

International Pollution Control. 1972. Chicago, Illinois.

International Union for Conservation of Nature and Natural Resources. Bulletin. 1952. Morges, Switzerland.

International Wildlife; dedicated to the wise use of the world's natural resources. (National Wildlife Federation). 1971. Washington, D.C.

Japan Architect (International Edition of: Shinkenchiku). 1925. Tokyo, Japan.

Journal of Environmental Education. 1969. Madison, Wisconsin.

Journal of Environmental Planning and Pollution Control. 1972. London, England.

Journal of Housing. 1944. Washington, D.C.

Journal of Planning and Environment Law. 1948. London, England.

Journal of Social Issues (Society for the Psychological Study of Social Issues). 1944. Ann Arbor, Michigan.

Journal of Wildlife Management. 1957. Washington, D.C.

Landscape Architecture (American Society of Landscape Architecture). 1910. Louisville, Kentucky.

Landscape Design (Institute of Landscape Architects). 1971. London, England.

Lighting Design and Application (Illuminating Engineering Society). 1906. New York.

London University. University College. Bartlett Society. *Transactions.* London, England.

Man-Environment Systems. 1969. New York. (Supercedes: Architectural Psychology Newsletter)

Man on Earth. 1972. Olema, California.

Metropole (Montreal City Planning Dept.). 1963. Montreal, Quebec.

Nations Cities; the magazine of the National League of Cities. 1963. Washington, D.C.

Nature. 1869. London, England.

Nature and Resources; newsletter about scientific research on environment, resources, and conservation of nature. (UNESCO) 1958. Paris, France. (Formerly: Nature and Resources and Man and Biosphere Programme. Bulletin)

New Dimension/Dimensions Nouvelles. Montreal, Quebec.

Nye Bonytt/Design for Living. 1941. Oslo, Norway.

Plan Canada (Town Planning Institute of Canada). 1959. Ottawa, Ontario.

Planner's Notebook (American Institute of Planners). 1971. Washington, D.C.

Planning Comment. 1962. Philadelphia, Pennsylvania.

Planning Outlook. 1948. Newcastle-upon-Tyne, England.

Pratt Planning Papers (Pratt Institute. Dept. of City and Regional Planning). 1962. Brooklyn, New York.

Progressive Architecture. 1920. Stanford, Connecticut.

Regional Studies. 1967. New York.

Resources (Resources for the Future). No. 43, 1973. Washington, D.C.

Riba Journal (Royal Institute of British Architects). 1893. London, England.

Royal Australian Planning Institute. Journal. 1958. Sydney, Australia.

Royal Town Planning Institute. Journal. Vol. 59, 1973. London, England.

Science. 1880. Washington, D.C.

The Science of the Total Environment; an International Journal for Scientific Research into the Environment and its Relationship with Man. 1971. Amsterdam, Netherlands.

Scientific American. 1845. New York.

Sierra Club Bulletin. 1893. San Francisco, California.

Specification Associate (Specification Writers Association of Canada). 1959. Toronto, Ontario.

TPIC News (Town Planning Institute of Canada). 1956. Ottawa, Ontario.

Town and Country Planning. 1932. London, England.

Town Planning Institute. Journal. 1914. London, England.

Town Planning Review. 1910. Liverpool, England.

Urban Affairs Quarterly. 1965. Beverley Hills, California.

Urban Land; news and trends in land development (Urban Land Institute). 1941. Washington, D.C.

Urban Research Bulletin/Bulletin de Recherches Urbaines (Canadian Council on Urban and Regional Research). 1969. Ottawa, Ontario.

Urban Studies. 1964. Edinburgh, Scotland.

Urbanisme; revue francaise. 1932. Paris, France.

Urbanistica. 1872. Turin, Italy.

La Vie Urbaine (Institut d'Urbanisme de l'Universite de Paris). 1921. Paris, France.

Water Pollution Control Federation. Journal. 1928. Washington, D.C.

Western Building Design (American Institute of Building Design). 1965. Los Angeles, California. (Formerly: American Journal of Building Design)

Zodiac; revue internationale d'architecture contemporaine. 1957. Milan, Italy.

CONCLUSION

Potential areas for further research include the development of a thesaurus in environmental design terminology which could be used as a basis for classifying multi-media collections. Also, a list of Subject Headings from the Library of Congress classification would aid in analyzing university collections for current holdings in the field. In addition, this list would be helpful in the formation of a SDI profile for environmental design which could be applied to an automated L.C. system. Although a list of pertinent call numbers has been included in this paper, a much more detailed review would assist in the creation of a profile, and be especially applicable to MARC II tapes. Suggested research projects also include: an annotated bibliography for the basic environmental design collection at the research level; and a listing of government bodies and their publications (with emphasis on Canada) that are concerned with the environment and man. Obviously, there is a great variety of opportunities for research in the analysis and organization of the literature of environmental design.

BIBLIOGRAPHY

Alonso, William. Beyond the Interdisciplinary Approach to Planning. University of California, Berkeley. Institute of Urban and Regional Development. Center for Planning and Development Research. Working Paper, No. 90, 1968.

Anderson, B. L. "Special Libraries in Canada," in Special Libraries, Vol. 61, February 1970, pp. 66-72.

Anglemeyer, Mary and Signe R. Ottersen. "Beyond Stockholm," in *Special Libraries*, September 1972, pp. 407-410.

Battecke, J.P.H. and M. A. Mercier. "A National Water Resources Scientific Information System," in *American Society for Information Science. West. Can. Chapter. Proceedings of the Fourth Annual Meeting*. Winnepeg. September 28-29, 1972, ed. by Anne B. Piternick, 1972, pp. 19-27.

Bestor, George C. and Holway R. Jones. *City Planning Bibliography: A Basic Bibliography of Sources and Trends*, 3d ed. New York: American Society of Civil Engineers, 1972.

Bogar, Candace. *Annotated Bibliography of Published Literature on the Cataloguing and Classification of Films, Pictures, and slides in Architecture, City Planning and Art*. Council of Planning Librarians. Exchange Bibliography #405, May 1973.

Boldt, Roger. "A Planning Library: The Empirical Approach," in *Special Libraries*, September 1971, pp. 335-339.

Borsodi, Ralph. *Flight from the City*. New York: London and Harper, 1933.

Branch, Melville C. *Comprehensive Urban Planning; A Selective Annotated Bibliography with Related Materials*. Beverley Hills, California: Sage Publications, 1970.

Brandon University. Brandon, Manitoba. *Calendar*, 1973.

Bruno, J. M. "Decentralization in Libraries," in *Library Trends*, Vol. 19, January 1971, pp. 311-317.

Canadian Press. "Environment Centre Urged," in *Vancouver Province*, Monday, December 3, 1973.

Carpenter, R. A. "Information for Decisions in Environmental Policy," in *Science*, Vol. 168, No. 3937, 12 June 1970, pp. 1316-1322.

Commoner, Barry. "Alternatives to the Environmental Crisis," in *American Institute of Planners, Journal*, Vol. 39, No. 3, 1973, pp. 147-162.

Le Corbusier. *Looking at City Planning*. Transl. by E. Levieux. New York: Grossman Publishers, 1971.

Cosgrove, Susan. "The Institute," in *AIA Journal*, February 1974, p. 32.

Council of Planning Librarians. Planning Agency Library Manual. Eugene, Oregon, 1964. (includes bibliographies)

Dee, S. R. A Basic Environmental Collection. Council of Planning Librarians, Exchange Bibliography #410, June 1973.

Dober, Richard P. Environmental Design. New York: Van Nostrand, 1969.

Dosa, Marta L. "A View of the International Environmental Information Problem," in Special Libraries, October 1973, pp. 457-463.

Dougherty, Richard M. "The Unserved - Academic Library Style," in American Libraries, Vol. 2, November 1971, pp. 1055-1058.

Dubos, Rene. Man Adapting. New Haven: Yale University Press, 1965.

Eastlick, J. T. "Conservation Library, Center of North America," in Special Libraries, Vol. 54, December 1963, pp. 637-638.

"Environment Canada." In Feliciter, Vol. 19, No. 7, 15 October 1973, p. 8.

Environmental Information Foundation. News Release. By the Honourable W. J. Yurko, Minister of the Environment, Friday, June 22, 1973.

Fitch, James Marston. "The Profession of Architecture," University of British Columbia, School of Architecture, Paper, 1973.

Freeman, Robert R. "Environmental Information: New Developments in NOAA," in ASIS Proceedings of the 34th Annual Meeting. Denver, Colorado, November 7-11, 1971, Vol. 8, Communication for Decision-makers, ed. by Jeanne B. North, 1972, pp. 115-119.

Gans, Herbert J. People and Plans: Essays on Urban Problems and Solutions. New York: Basic Books, 1968.

Geddes, Robert L. and Bernard P. Spring. A Study of Education for Environmental Design. A Report by Princeton University for the American Institute of Architects. Princeton, New Jersey: Princeton University Press, 1969.

Giedion, Siegfried. Architecture and the Phenomena of Transition. The Three Space Concepts in Architecture. Cambridge, Massachusetts: Harvard University Press, 1971.

Giedion, Siegfried. *Space, Time and Architecture*. Cambridge, Massachusetts: Harvard University Press, 5th ed., 1967.

Gruft, Andrew and Donald Gutstein. "A Basis for Resolving Urban Problems," in *Architectural Teaching and Research*, Vol. 2, No. 1, November 1971, pp. 59-62.

Haggerty, Thomas M. *Planning Library Aids: A Guide to Information Sources*. Council of Planning Librarians, Exchange Bibliography #120, 1970.

Haro, R. "Research Unit Libraries as Special Libraries on the Campus," in *Special Libraries*, Vol. 59, October 1968, pp. 634-637.

Harvey, Nigel. "Sources of Information on Environmental Pollution," in *ASLIB Proceedings*, Vol. 25, No. 8, August 1973, pp. 300-304.

Heyer, Paul. *Architects on Architecture: New Directions in America*. London: Allen Lane, 1967.

Hufschmidt, Maynard M., ed. *Regional Planning: Challenge and Prospects*. New York: Praeger, 1969.

Huxtable, A. L. "Place of Genuine Joy: Avery Architectural Library at Columbia University," in *New York Times*. Section 2, April 2, 1972, p. 21.

Ingram, Helen M. "Information Channels and Environmental Decision Making," in *Natural Resources Journal*, Vol. 13, January 1973, pp. 150-169.

Jones, Kevin P. "Towards Informatics," in *ASLIB Proceedings*, Vol. 25, No. 12, December 1973, pp. 491-497.

Keeley, Emily A. "Environment Canada Library," in *Canadian Library Journal*, Vol. 29, No. 5, September-October 1972, pp. 396-397.

Kuhn, T. S. *The Structure of Scientific Revolutions*. Chicago, Illinois: University of Chicago Press, 2nd ed., 1970.

Larson, C. Theodore. *Ser. 3: Environmental Analysis*. Ann Arbor: University of Michigan, 1968.

Lee, Norman and Peter Saunders. "Environmental Pollution: A Guide to Recent Publications," in *British Book News*, March 1973, pp. 140-149.

Mason, B. M. and Anthony Thompson. *List of Subject Headings on Architecture and Related Subjects*, rev. ed. London: RIBA, 1968.

Meshenberg, M. J. *Environmental Planning; a Selected Annotated Bibliography*. Chicago: American Society of Planning Officials, 1970.

Miller, William C. *Factors and Forces Influential to Architectural Design. A Bibliography*. Council of Planning Librarians, Exchange Bibliography #124, April 1970.

Moore, Gary T. *Emerging Methods in Environmental Design*. Cambridge, Massachusetts: MIT Press, 1970.

Musgrove, John. "Educating Environmentalists," in *Architectural Research and Teaching*, Vol. 2, No. 3, June 1973, pp. 144-152.

Oliver, Anthony M. "A Planning Library: The Practical Approach," in *Special Libraries*, Vol. 64, No. 9, September 1973, pp. 355-366.

Overby, Osmund. "Modern Architecture: The Literature of the 1960's," in *Choice*, Vol. 4, September 1967, pp. 621-625.

Perin, Constance. *With Man in Mind; an Interdisciplinary Prospectus for Environmental Design*. Cambridge, Massachusetts: MIT Press, 1970.

Perloff, Harvey S. *Education for Planning: City, State, and Regional*. Baltimore: Johns Hopkins Press, 1957.

Piternick, Anne B. "Library Use Studies as a Source of Management Information: Use of Questionnaires," in *ASIS. Western Canada Chapter. Proceedings of the Fourth Annual Meeting*. Winnipeg. September 28-29, 1972, ed. by A. B. Piternick, 1972, pp. 53-60.

Pray, James S. *City Planning; a Comprehensive Analysis of the Subject Arranged for the Classification of Books, Plans, Photographs, and Other Collected Materials*. Cambridge, Massachusetts: Harvard University Press, 1913, reprint 1965.

Princeton University. School of Architecture. *Architecture and the University*. Proceedings of a conference held at Princeton University, December 11-12, 1953. Princeton, New Jersey: Princeton University. School of Architecture, 1954.

Rapoport, Amos. "Some Observations Regarding Man-Environment Studies," in *Architectural Research and Teaching*, Vol. 2, No. 1, November 1971, pp. 4-15. Bibl.

Simmons, Peter. "Library Use Studies as a Source of Management Information: Computer Assisted Transaction Analysis," in *ASIS. West. Can. Chap. Proceedings of the Fourth Annual Meeting*. Winnipeg. September 28-29, 1972, ed. by A. B. Piternick, 1972, pp. 41-52.

Simons, Wendell W. and Luraine C. Tansey. *Santa Cruz Classification for Slides and Pictures for the Organization and Automatic Indexing of Interdisciplinary Academic Collections*. Santa Cruz: University of California, November 1969.

Smith, Denison Langley. *How to Find Out in Architecture and Building: A Guide to Sources of Information*. Oxford: Pergamon, 1967.

Sommer, Robert. "Man's Proximate Environment," in *Journal of Social Issues*, Vol. 22, No. 4, 1966, pp. 59-69.

Steinhart, John S. and Stacie Cherniack. *The Universities and Environmental Quality: Commitment to Problem Focused Education*. A Report to the President's Environmental Quality Council. Office of Science and Technology. Washington, D.C.: U.S. Government Printing Office, September 1969.

Studer and Stea. "Architectural Programming, Environmental Design, and Human Behaviour," in *Journal of Social Issues*, Vol. 28, 1972.

Tange, Kenzo. "A Plan for the Tokyo Tsukiji Area," in *Japan Architect*, May 1967.

Truswell, J. S. "The Development of a Northern Environment Information System," in *ASIS. Wes. Can. Chap. Proceedings of the Fourth Annual Meeting*. Winnipeg. September 28-29, 1972, ed. by A. B. Piternick, 1972, pp. 7-18.

U.B.C. Library News. Vol. 4, No. 4, April 1971 and Vol. 6, No. 1, 1973.

"U.N. Environmental Conference Approves Plans for International Referral Service and World-wide Information," in *Information*, Vol. 4, No. 4, July-August 1972, pp. 183-190.

University of Calgary. Calgary Alberta. Faculty of Environmental Design. *Calendar 1973/74*, 1973.

University of Calgary. Calgary, Alberta. Faculty of Environmental Design. Notes on Courses, 1972, p. 8.

University of Lethbridge. Lethbridge, Alberta. Calendar, 1972.

University of Manitoba. Winnipeg, Manitoba. Calendar, 1972.

University of Waterloo. Waterloo, Ontario. Faculty of Graduate Studies. Calendar, 1972.

University of Winnipeg. Winnipeg, Manitoba. Calendar, 1972.

Walsh, Robert R. "Branch Library Planning in Universities," in Library Trends, Vol. 18, October 1969, pp. 210-222.

White, Brenda. "Information for Environmental Planning," in ASLIB Proceedings, Vol. 25, No. 8, August 1973, pp. 288-299.

White, Brenda. "A Survey of Planning Libraries," in The Architects' Journal, 25 April 1973.

White, Brenda. Sourcebook of Planning Information. London: Clive Bingley, 1971.

Whyte, William H. The Last Landscape. New York: Doubleday, 1970.

York University. Toronto, Ontario. Faculty of Environmental Studies. Programs Leading to the Degree of Master in Environmental Studies, December 1973.

COUNCIL OF PLANNING LIBRARIANS Exchange Bibliography #747-748

ENVIRONMENTAL DESIGN: AN ANALYSIS OF THE FIELD;

ITS IMPLICATION FOR LIBRARIES; AND A GUIDE TO THE LITERATURE

Additional copies available from:

Council of Planning Librarians
Post Office Box 229
Monticello, Illinois 61856

for $8.50

UNIVERSITY OF ILLINOIS-URBANA
018.7114C73E C001
EXCHANGE BIBLIOGRAPHY. URBANA, ILL
746-768 1975
3 0112 029109508